MEASURING POVERTY

A New Approach

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Panel on Poverty and Family Assistance:
Concepts, Information Needs, and Measurement Methods

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APPENDICES

APPENDIX

A

Dissent

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Poverty statistics are the primary indicator of living conditions among people at the economic spectrum's lower end. These data are among the most important and the most politically sensitive data published by the U.S. government. That the method used to measure poverty has remained unchanged since its inception, despite well-recognized conceptual and methodological problems, is testimony to this sensitivity. In this environment, only a report firmly grounded in science can produce the kind of agreement among government officials that would lead to improvements in measuring poverty. The major recommendations and conclusions for changing the measurement of poverty by the Panel on Poverty and Family Assistance are not based on scientific evidence. They lie well outside the National Research Council's stated mission "to deliver science advice" to the government. Therefore, I have chosen to dissent.

There are parts of the report for which the panel should be commended. The sections that address problems with the current measure, alternative poverty concepts, and measuring poverty across families of different sizes are particularly illuminating. More analyses based on the scientific literature would have improved the report. Social science research has developed a vast body of scientific knowledge about issues relating to the measurement of poverty. Indeed, many panel members have been important contributors to this knowledge base. There exist, for example, well-developed studies for constructing efficient, meaningful indices to account for geographical differences in living costs. This literature identifies sampling procedures that can be applied to maximize the informational content of surveys at minimum cost and to develop appropriate weighting schemes to create a consumption bundle that

reflects true differences in living costs. There is also a rich literature on statistical properties of alternative imputation procedures that would be required to incorporate in-kind benefits and taxes into measures of family resources. To some people, these contributions may not be eye-catching; they may not be newsworthy; but they are scientific.

Instead of focusing on these areas where science can make a contribution, the report is devoted to recommendations and conclusions that are driven by value judgments. According to the report, the poverty line should be raised from its current level, it should rise faster than inflation over time, and fewer resources should be counted when determining whether a family's income is above or below the poverty line. These recommendations are not scientific judgments. They are value judgments made by scientists—with a particular point of view. In essence, the panel has mostly eschewed the role of scientific panel and has instead assumed the role of a government policy maker. By so doing, the panel has not served well either the policy community or the scientific community. Although it can be difficult to establish a precise boundary between where science ends and policy making begins, this panel has ventured far afield in a desire to "make a difference." Instead of using strong scientific research to produce recommendations that would compel a particular policy approach, the panel has made recommendations with little scientific bases.

My dissent focuses on four major recommendations and conclusions: measuring the poverty line, choosing a range for the poverty line, updating the poverty line, and accounting for medical care in measuring family resources. This dissent is not intended to be a comprehensive critique of the panel report. Although there is considerably more in the report that I find objectionable, to avoid obscuring the central reason for my dissent, I do not address objections that are not germane to it.

MEASURING THE POVERTY LINE

The report recommends a new method for measuring the poverty line:

> The poverty threshold should represent a budget for food, clothing, and shelter (including utilities) and a small additional amount to allow for other needs . . .

I focus first on this seemingly noncontroversial recommendation because it illustrates the lack of scientific basis that permeates the report's major recommendations for changing the measurement of poverty.

My objection to this recommendation is that the choice of particular commodities is not based on science. The choice may appear to be quite reasonable, and the panel may be correct when it argues that these commodities "represent basic living needs with which no one would quarrel." But

what scientific basis exists for concluding that food, clothing, and shelter are basic needs and health care or personal care services are not? Is it a scientific proposition that designer tennis shoes are a basic need but that the services of primary care physicians are not? What scientific basis exists for concluding that *all* types of food, clothing, and shelter, rather than only a subset, are basic needs? The report provides no answers to these questions. It does not attempt to establish a scientific basis nor does it present scientific evidence to support its choices.

The panel's primary rationale is that "the United States has major assistance programs to provide food and housing . . . [and] clothing allowances historically were separately identified grants under Aid to Families with Dependent Children." This argument is faulty on several accounts. First, given the broad array of government-provided benefits, the same argument could be used to support the inclusion of any number of other commodities as basic needs. Health care, education, transportation, and laundry services are all currently provided by the federal government to the poor. Second, the fact that the government provided medical care to the poor on an entitlement basis long before it established entitlements for either food or housing assistance might suggest that medical care is every bit as basic a need as the former set of commodities. Also, the fact that the U.S. government spends an increasingly substantial proportion of its budget to provide medical insurance for the low-income population is a strong indication that medical care is viewed as a priority commodity.

The foregoing should not be taken to mean, however, that scientific study has no role in this choice. Scientific analysis can play a significant role by evaluating methods to improve the quality of existing consumption data. It can establish criteria for evaluating the statistical accuracy of alternative poverty budgets. It can evaluate alternative sampling methodologies to improve a survey's ability to count certain groups, such as the homeless. Scientific analysis can ascertain living conditions of families at different income levels so that policy officials can determine the levels of income that should qualify as poverty.

UPDATING THE POVERTY LINE

The panel report recommends updating the poverty line annually by the growth rate in the median level of expenditures on food, clothing, and shelter, rather than by the Consumer Price Index as is the current practice. If adopted, the recommendation would fundamentally change the concept of poverty from an absolute standard to a relative standard. Under the recommended method, the poverty line would rise about 8 percent faster per year than under the current method.

This recommendation, like the previously discussed one, cannot be de-

duced from any set of scientific principles, facts, or arguments. Any updating method, be it one to ensure an absolute poverty threshold, a relative threshold, or one that falls somewhere in between, is a policy choice, not a scientific one. But unlike the previously discussed recommendation, this one would have a substantial impact on the level of poverty over time.

At various points, the report forthrightly states that many of its recommendations are not made on the basis of scientific evidence alone, that they also involve the value judgments of panel members. But this recommendation is all judgment and no science. The choice of how rapidly the poverty line should rise over time derives from society's values. Judgments about these values are more properly made by elected officials charged with translating societal values into law rather than in reports issued by scientific bodies.

CHOOSING A RANGE FOR THE POVERTY LINE

The report's introduction argues correctly that the choice of a poverty threshold is not a scientific one. The panel then concludes that the appropriate range for the poverty line is between $13,700 and $15,900 for a family of four.[1] This range is between 14 and 33 percent higher than the comparable current poverty line. In terms of consumption of the three basic needs—food, clothing, and shelter—40 to 55 percent of four-person families consume less than this amount. The report attempts to create an impression that this range lies within the scientific community's consensus about where the poverty line should be drawn. The policy-making community should be aware that there is no consensus within the scientific community. Furthermore, even if there were, it should carry no more weight among policy makers than a consensus among theoretical physicists that they prefer tofu to beef burgers.

Choosing a poverty line or a range for that line is a policy maker's job, not the job of a scientific panel. Scientific expertise can inform policy makers' choices. For example, this expertise can be brought to bear on measuring and assessing living conditions at or near alternative poverty lines. Unfortunately, the report provides no information on the level of economic deprivation among persons at any of the poverty levels discussed.

MEASURING FAMILY RESOURCES: THE ISSUE OF MEDICAL CARE

For measuring family resources, the report recommends that out-of-pocket expenditures for medical care be subtracted from a family's income. This recommendation is troubling. It assumes that all medical care expenditures are

[1] The report is vague about why the panel chose to label its range a conclusion instead of a recommendation. However, the distinction is immaterial since there is no scientific basis for recommending or concluding that a particular range is appropriate.

nondiscretionary. Within the field of economic science, the assumption that all medical care expenses are nondiscretionary runs contrary to three decades of economic research. From the early work of Pauly (1968) and Grossman (1972) to later work by Newhouse (1993) and others, economists have viewed health as an economic good, responsive to both income and price changes. This consumer choice approach has dominated economic analysis of health care and a greatly enhanced analysis of health care expenditures. Although this research does not offer any firm conclusions about how health care should be treated in the context of poverty measurement, its basic premise is at odds with the panel's rationale.

The panel's recommendation is based on an approach suggested in a 1985 conference paper by David Ellwood and Larry Summers. In the decade since that paper was presented, there has not been, to my knowledge, a single critical evaluation or discussion of it in any major peer reviewed scientific economics journal. The paper's merits aside, its approach has not undergone the kind of assessment that science requires before a scientific consensus is reached.

The report argues that deducting out-of-pocket expenses removes medical care entirely from the calculation of poverty. The argument is not correct, as the following example illustrates. Consider two healthy families—the Smith family and the Jones family. Suppose the Smith family has an income that is $2,000 higher than the Jones's. The Smith family purchases a $3,000 health insurance plan while the Jones family purchases no health insurance. Both families are fortunate enough to have no additional out-of-pocket health expenditures during the year. According to the report's recommended treatment, the Smith family would be poorer than the Jones family. And it would be so only because it chose to spend its higher income on health insurance.

The panel also argues that, by excluding medical care from its list of basic goods, its treatment is consistent. However, for two reasons, this argument is less than satisfactory. First, the 15 to 25 percent add-on to the poverty threshold "for other needed expenditures" can be construed as building in an amount for medical care. In fact, the dollar value of this percentage—$1,800 to $3,200—is more than one-half the actuarial value of Medicaid for the noninstitutionalized population and close to the cost of a typical private insurance plan. Second, the panel could have obtained the same range for the poverty threshold by including medical care as a fourth basic commodity and basing the threshold on the 20th instead of the 30th percentile of the consumption distribution.

One final point about the panel's treatment of in-kind benefits is in order. Much of the impetus for changing the way in which resources are counted comes from the fact that the current method ignores the value of billions of dollars in noncash benefits for food, housing, and medical care that are spent on low-income families. The reader will be surprised to see that the panel,

after making adjustments to countable income, concludes that families living near the current poverty line have fewer countable resources than they would have under the current poverty measure.

CONCLUSION

I dissent because the report's recommendations—to choose three particular commodities upon which to base the calculation of poverty and to exclude other commodities; to establish a normative range of values within which the poverty line should fall; to increase the poverty line over time to account for perceived improvements in the standard of living; and to exclude medical expenses from family resources—are the outcome of highly subjective judgments. These are judgments that do not result from scientific inquiry and, therefore, in my opinion, are improperly placed in this report.

I do not believe that this report will be the basis for improving the measurement of poverty because its recommendations are not based on scientific evidence. To my disappointment, the panel has missed an extraordinary opportunity to enlighten and inform government officials about problems of measuring poverty and about the solutions to those problems.

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APPENDIX

B

Data Sources for Measuring Poverty

This appendix provides information on the major features of four continuing surveys that provide data relevant to measuring poverty and economic well-being: the Consumer Expenditure Survey (CEX), the Current Population Survey (CPS) March income supplement, the Panel Study of Income Dynamics (PSID), and the Survey of Income and Program Participation (SIPP). The appendix also provides detailed comparisons of the features and quality of the March CPS and SIPP. The March CPS is the current source of the nation's official income and poverty statistics; we recommend that SIPP become the official source instead (see Chapter 5). (The report of the Panel to Evaluate SIPP made the same recommendation; see Citro and Kalton, 1993:8).

MAJOR FEATURES OF THE CEX, MARCH CPS, PSID, AND SIPP

Consumer Expenditure Survey

The CEX is sponsored by the Bureau of Labor Statistics (BLS) and conducted by the Census Bureau, with a current budget of about $12 million per year. Historically, surveys of expenditures by consumers (with varying names and formats) were fielded at roughly 10- to 15-year intervals from 1901 to 1950. The 1950 survey was the first one to be officially designated the Consumer Expenditure Survey. The 1950 and 1960-1961 surveys used annual recall for expenditures. In 1972-1973, the current design of a quarterly Interview Survey and a two-week Diary Survey was introduced. In 1980 the CEX became a continuing survey. Its major uses are to provide the market basket

for the Consumer Price Index and to provide data for analysis of expenditures in relation to demographic and other characteristics. (For information on the CEX, see Bureau of Labor Statistics, no date; Jacobs and Shipp, 1990.)

Design and Use

The Interview Survey includes a sample of 6,800 consumer units (of which about 5,000 are used for quarterly estimates), interviewed in person at 3-month intervals. Households are in the sample for five quarters (the first interview has a 1-month recall and is used for bounding purposes and to collect an inventory of durable goods). There are monthly rotation groups: each month, one-fifth of the sample is new and one-fifth is completing its fifth and final interview. Household response rates to the Interview Survey have averaged about 85 percent since 1980. There appears to be little time-in-sample bias in the survey, but considerable recall error: for example, apparel expenditures reported for the first month prior to the interview are 124 percent of the monthly mean, while those reported for the third month prior to the interview are only 76 percent of the mean (Silberstein, 1989).

The Diary Survey includes a sample of 6,000 consumer units, each of which records daily expenditures for 2 weeks. Interviews are spread out over the year. Interviewers make three visits to each unit: an initial visit to drop off the first-week diary, a second visit to drop off the second-week diary and pick up the first-week diary, and a third visit to pick up the second-week diary. Household response rates to the Diary Survey have ranged from about 85 to 90 percent.

The CEX covers the U.S. civilian noninstitutionalized population, including military in civilian housing, students in university or college housing, and group homes. (The 1982-1983 interviews excluded the rural population because of budget cuts.) The reporting unit is the consumer unit, defined as one of the following: a single person living alone or sharing a household with others but financially independent; family (household members related by blood, marriage, or adoption); two or more persons living together who share responsibility for two of three major expenses—food, housing, and other expenses. The respondent is any member of the consumer unit aged 16 or older with most knowledge of the unit's finances. People who leave a sampled address are not followed.

In its publications, BLS makes use of data from both the Interview and the Diary Surveys to develop a total picture of expenditures. Comparisons with data from the National Income and Product Accounts (NIPA) indicate that the CEX estimates for some categories are quite complete; these include rent, utilities, fuels, and public services; vehicle purchases; and gasoline and motor oil. But for other categories the CEX estimates fall considerably short: for example, from information provided by BLS, the ratios of CEX to NIPA

estimates from 1987 to 1990 were only about 0.70 for food, 0.75 for household furnishings and equipment, 0.60 for apparel and services, and 0.60 for public transportation (see also Bosworth, Burtless, and Sabelhaus, 1991; Gieseman, 1987; Slesnick, 1991a).[1]

Researchers who analyze expenditure data typically work with the Interview Survey, from which users can construct annual data on expenditures and income. (The Interview and Diary Survey samples are independent, so there is no way to actually link the microrecords.) However, some proportion of consumer units in the sample for the Interview Survey do not have observations for all four quarters because of dropping out of the survey or moving away from the sampled address. (The sample, technically, is one of addresses. Consumer units that move from the sampled address are not followed, but, instead, the new occupants are interviewed.) Also, because of the rotation design, a large proportion of observations with complete information must have their data adjusted in some manner in order to obtain calendar-year estimates.

Content of the Interview Survey

- *Demographic characteristics*
- *Work experience* Information is obtained for consumer unit members aged 14 and over on work experience and job characteristics in the previous quarter and in the prior 12 months (the latter information is obtained at the second and fifth interviews).
- *Detailed expenditures* Detailed quarterly data (per each payment or bill) are obtained for expenditure categories that comprise an estimated 60-70 percent of total expenditures, including rent, facilities, and services for rented living quarters (including housing assistance subsidies); payments on mortgages, lump sum home equity loans, and line of credit home equity loans; ownership costs (extra payments on mortgage principal, ground rent, cooperative or condominium fees); telephone expenses; utilities and fuels; construction, repairs, alterations, and maintenance of property; purchases of appliances, household equipment, and other selected items; household equipment repairs, service contracts, and furniture repair and reupholstering; purchases of home furnishings and related household items; purchases of clothing; purchases of infants' clothing, watches, jewelry, and hairpieces; purchases of sewing materials; payments for leased vehicles; purchases of vehicles; disposals of vehicles; vehicle maintenance and repair; vehicle equipment, parts, and accessories; licensing, registration, and inspection of vehicles; other vehicle operating expenses; premiums for other than health insurance; premiums for health insurance; coverage by Medicare and Medicaid; medical and health expenditures

[1] However, the NIPA and CEX data are not strictly comparable.

and reimbursements; educational expenses paid by the consumer unit and by others (including for nursery school and day care centers); trips by type of expense for each trip completed during the quarter; reimbursements for trip expenses; local overnight stays; and gifts of commodities for people outside the family.

• *Global (or usual) expenditures* Global (or usual) expenditures are obtained for categories that comprise an additional estimated 20-25 percent of total expenditures, including quarterly amounts for subscriptions, memberships, books, and entertainment expenses; quarterly amounts for miscellaneous items (e.g., funerals, catered affairs, accounting fees, home services, including babysitting and in-home child care, pets and pet expenses, alimony, child support, charitable contributions); usual weekly expenses for supermarkets and specialty food stores; usual monthly expenses for liquor and food away from home; quarterly benefits from food stamps (and months received) and other meals provided free; quarterly amounts for selected services and goods (e.g., laundromats); usual weekly expenses for tobacco products; and usual monthly expenses for haircuts for men and women members of the consumer unit.

• *Expenditures in last 12 months* Data on expenditures in the prior 12 months are obtained at the fifth interview for occupational expenses (e.g., union dues) and contributions, including alimony, child support, college expenses for students attending school away from home, gifts to people outside the consumer unit, contributions to charities, contributions to religious organizations, contributions to educational organizations, political contributions, and other contributions.

• *Real assets* An inventory of major household appliances and features of the dwelling unit, together with descriptions of each owned property, are obtained at the first interview, and changes in ownership of property and mortgages are obtained each quarter. The rental value of owned home and the value of owned home are obtained.

• *Financial assets* Data obtained include current credit balances (e.g., credit cards, credit unions, bank loans); credit balances a year ago; finance charges paid in the prior 12 months (e.g., on revolving credit cards, late payments to doctors); changes in financial assets, comparing value last month and 1 year ago (e.g., savings accounts, checking accounts, savings bonds, securities); purchases and sales of stocks, bonds, or mutual funds in the prior 12 months; investments to or withdrawals from own business or farm in the prior 12 months; amounts owed currently and 1 year ago by others to someone in the consumer unit; and settlements during past year on insurance policies. All of these items are obtained at the fifth interview; current credit balances are also obtained at the second interview.

• *Income in the prior 12 months* Data on income for the prior 12 months are obtained at the second and fifth interviews. Sources obtained for each consumer unit member aged 14 and over include wages or salary, nonfarm

self-employment income, farm self-employment income, Social Security or railroad retirement, and Supplemental Security Income (SSI). Sources obtained for the consumer unit as a whole include worker's compensation and veterans' benefits; public assistance; interest on savings accounts and bonds; regular income from dividends, royalties, and estates and trusts; income from pensions or annuities from private and public sources; net income or loss from roomers or boarders; net income or loss from rental property; income from alimony, child support, and regular contributions from persons outside the consumer unit; lump-sum payments; money from the sale of household furnishings or other belongings; other money income (e.g., scholarships, foster care payments); and refunds (e.g., from federal income tax or insurance policies).

• *Taxes* Data are obtained at the second and fifth interviews on tax deductions from the last paycheck of each consumer unit member aged 14 and over (federal income tax, state and local income tax, and Social Security payroll tax and deductions for pensions). Data are also obtained for the prior 12 months on payments by the consumer unit as a whole for additional federal income tax (beyond that withheld from earnings), additional state and local taxes, property taxes not reported elsewhere, and other taxes not reported elsewhere. Sales taxes are calculated from information provided for individual expenditures and are included in the component expenditures.

CPS March Income Supplement

The CPS is a continuing survey, begun in the 1940s. Income questions were first asked in 1945 (for income year 1944).[2] Since 1956 the income questions have been part of the supplement each March; since 1970 the March supplement has also included questions on work experience in the prior year. (Supplements in other months cover such topics as voting behavior, educational enrollment, and fertility and marital history.) BLS sponsors the core of the CPS, which is designed to provide monthly unemployment rates. The Census Bureau conducts the survey and sponsors the March income supplement. The total budget for the CPS is about $28 million per year, of which about $2 million to $3 million is for the March supplement. (For information on the March CPS, see Bureau of the Census, 1992b; and Citro, 1991.)

Design

The CPS has a rotating design. Households are in the sample for 4 months, out of the sample for 8 months, and in again for 4 months. Hence, there is 50

[2] Since about 1960, however, the income data for 1944 and 1945 and the nonfarm income data for 1946 have been omitted from the Census Bureau's P-60 series money income reports.

percent overlap in the sample for poverty estimates from year to year. The sample size is about 60,000 households.

The sample covers the U.S. civilian noninstitutionalized population. The March supplement also includes military in civilian housing and an additional sample of 2,500 housing units that had contained at least one adult of Hispanic origin as of the preceding November interview. The reporting unit is the household, with unrelated individuals and families also identified. The respondent is each household member aged 15 and older, but proxy responses are readily accepted. Interviews are in person for the first month and then by telephone to the extent possible. People who leave a sampled address are not followed. (Response rates and other aspects of data quality are reviewed below.)

A major redesign of the CPS was recently implemented (see Cohany, Polivka, and Rothgeb, 1994). The redesign includes respecification of the sample design on the basis of information from the 1990 census about the geographic distribution and other characteristics of the population, changing the data collection mode to computer-assisted personal interviewing and computer-assisted telephone interviewing (CAPI/CATI), and making important wording changes to the core questions on labor force participation. No changes were made to the March income supplement (except to put the questionnaire into a CAPI/CATI format), but the responses may be affected by one or more aspects of the redesign of the core survey.

Content

The content of the core CPS interview includes

- demographic characteristics; and
- labor force participation, hours worked, reason for part-time work, reason for temporary absence from job, industry and occupation in prior week, job search behavior in the previous 4 weeks if not working and when last worked, usual hours and usual earnings, union membership, reason left last job, and reasons for looking for work (for selected rotation groups).

The content of the March supplement includes

- labor force participation and job history in the prior calendar year for each household member aged 15 or older;
- annual income for the prior calendar year for each household member aged 15 or older by detailed source—about 30 types of regular cash income are identified separately, including wages and salaries, net self-employment income, Social Security for oneself or a spouse, Social Security for one's children, railroad retirement, unemployment compensation, veterans' compensation, black lung payments, disability payments, SSI, Aid to Families with Dependent Children (AFDC), other welfare, child support, alimony, private

pension, federal civilian pension, military pension, state or local government pension, annuity income, income from estates and trusts, other retirement or disability or survivor payments, money from relatives or friends, interest income, dividends, net rental income, income from individual retirement accounts, Pell Grants, other educational financial aid, other cash income;

- participation in noncash benefit programs, including energy assistance, food stamps, public housing, and school lunch; and
- health insurance coverage.

Panel Study of Income Dynamics

The PSID is a continuing panel survey of a cohort of families, begun in 1968. The survey is sponsored and conducted by the University of Michigan Survey Research Center (SRC). Since 1983 the National Science Foundation has been the principal funder, with substantial continuing support from the Office of the Assistant Secretary for Planning and Evaluation in the U.S. Department of Health and Human Services. (The survey was originally funded by the Office of Economic Opportunity; other agencies that have provided funds include the U.S. Departments of Labor and Agriculture, the National Institute of Child Health and Human Development, the National Institute on Aging, and the Ford, Sloan, and Rockefeller foundations.) The current annual budget is about $2.6 million, which includes direct and overhead costs for the core survey only, not including separately funded supplements. (For information on the PSID, see Hill, 1992; Survey Research Center, 1989.)

Design

The sample comprises three components: (1) 2,900 families interviewed in 1968 from the SRC national sampling frame, representative of the civilian, noninstitutionalized population; (2) 1,900 low-income families with heads under age 60 who were interviewed in 1968 from the 1966-1967 Survey of Economic Opportunity (SEO); and (3) 2,000 Hispanic families added in 1990. Currently, 9,000 families (including original sample families and the subsequent families of their members) are interviewed once each year. The reporting unit is the family, defined as one of the following: a single person living alone or sharing a household with other nonrelatives; a family of members related by blood, marriage, or adoption; an unmarried couple living together in what appears to be a fairly permanent arrangement. The respondent is the family head, usually the adult male head if there is one. Interviews are conducted annually and, since 1973, mostly by telephone (92%). Original sample members who leave to form separate family units are followed (including children born to original sample members), and information is obtained about the coresidents in their new families. Sample members who are institu-

tionalized are tracked and interviewed subsequently if they return to a family setting.

The PSID experienced a large sample loss—24 percent—at the initial interview in 1968, but additional sample loss dropped to 8 percent of the eligible families at the second interview, and it was only 1-2 percent at each interview thereafter (Survey Research Center, 1989:Table 2a). The initial large sample loss was partly due to the PSID sample design, which originally included a national probability sample of about 2,900 families and a sample of about 1,900 low-income families drawn from the sample used for the 1967 SEO. Several factors increased the nonresponse from the SEO sample, including the requirement by the Census Bureau that SEO families sign a release allowing their names to be given to the PSID (Hill, 1992).

The extent to which attrition introduces bias into estimates from the PSID is not clear. Several studies in the 1980s found that, although cumulative sample loss was over 50 percent (52% by 1980 and 58% by 1985), there was no evidence that attrition correlated with individual characteristics in a way that would produce biased estimates. For example, Becketti et al. (1988:490) found no evidence that attrition "has any effect on estimates of the parameters of the earnings equations that we studied." Duncan, Juster, and Morgan (1984) also found that response rates were just as high in the PSID among families in the lowest income decile as in the middle or upper income deciles (see also Curtin, Juster, and Morgan, 1989, and other studies cited in Hill, 1992). However, Duncan and Rodgers (1991) found bigger differences in poverty rates for white children between the PSID and the March CPS in 1981-1986 than in 1967-1971 (the PSID rates were lower in both periods). They attribute the finding to the fact that, as of 1986 (before the addition in 1990 of a new Hispanic sample), the PSID represented only about one-third of the Hispanic children reported in the CPS while it represented all non-Hispanic white and black children.

One indicator of data quality is that about 95 percent of heads and spouses provide "adequate responses" for labor and asset income so that the responses do not have to be edited. The percentage of adequate responses has been in the range 94-98 percent over the life of the survey (Survey Research Center, 1989:Table 5).

Content

The PSID collects the most detailed information about family heads and, since the late 1970s, about wives and cohabitors. The core content includes

- demographic characteristics;
- employment information—current and employment history in past year;
- income sources and amounts for the head for the past calendar year

(including which months received) from wages or salaries; bonuses, overtime, tips, or commissions; professional trade or practice; farming or market gardening; roomers or boarders; extra jobs; rent; dividends, interest, trust funds, or royalties; AFDC; SSI; other welfare; Social Security (including separately listed amounts for other family members); veterans' benefits; other retirement pay, pensions, or annuities; unemployment compensation; worker's compensation; alimony; child support; help from relatives; and anything else;

- income sources and amounts for the spouse for the past calendar year (including which months received) from earnings; unemployment compensation; worker's compensation; and interest, welfare, pensions, child support, or any other source (with each source to be separately listed);
- income sources and amounts for other individual family members aged 16 and over for the past calendar year (including which months received) from earnings from first and second jobs; and any other income such as pensions, welfare, interest, gifts, or anything else (with each source to be separately listed);[3]
- income earned by individual family members under aged 16 and family lump-sum income (e.g., inheritance or insurance settlements) in past calendar year;
- public assistance—food stamps (amount in past calendar year and specific months in which received), housing subsidies, energy assistance, and Medicaid or other welfare medical services;
- estimate of federal taxes paid (based on information about income, exemptions, dependents living outside the household, whether itemized, mortgage interest payments, and property taxes);
- housing, including current value, remaining mortgage principal, monthly mortgage payment for owned home, monthly rent, and annual utility costs;
- estimate of annual food costs (in home and away from home) from reports of average weekly expenditures;
- financial assistance to people living elsewhere;
- housework time;
- geographic mobility;
- socioeconomic background;
- health, religion, and military service; and
- county-level data (unemployment rate, wage rate for unskilled workers, labor market demand conditions).

Event histories (dated to the month) are recorded for demographic, employment, and poverty characteristics. Supplemental topics have included

[3] It is difficult to assign a value to the number of income sources collected in the PSID, because of the question format for family members other than the head, which asks for particular sources to be named without going through a specified list.

achievement motivation, attitudes, child care, cognitive ability, commuting to work, disability and illness, do-it-yourself activities, extended family and kinship ties, fertility and family planning, financial situation and health of parents, food stamp and SSI eligibility, fringe benefits, hospitalization, housework, housing and neighborhood characteristics, housing utilities, impact of inflation, inheritances, job training, retirement plans and experiences, retrospective histories, saving behavior, smoking and exercise, spells of unemployment and time out of the labor force, time and money help with emergencies, time use, and wealth. In 1990, there were some links to Medicare records.

Survey of Income and Program Participation

SIPP is a continuing panel survey, begun in 1983, that is sponsored and conducted by the Bureau of the Census. The current annual budget is about $30 million to $32 million. (For information on SIPP, see Citro and Kalton, 1993; and Jabine, King, and Petroni, 1990.)

Design

The current design introduces a new sample panel each February. Each sample of households (panel) is interviewed every 4 months for 32 months (or 2.67 years); because of budget restrictions, some panels have had fewer than eight interview waves.[4] There are monthly rotation groups. Until 1992 interviews were in person to the extent possible; beginning in February 1992 the first and sixth interviews have been in person with the rest by telephone. Under this design, three panels are in the field in most months of each year. (For information about response rates and other aspects of data quality, see below.)

The sample covers the U.S. civilian noninstitutionalized population and members of the armed forces living off post or with their families on post. Sample size has varied from 12,500 to 23,500 households per panel; 20,000 households is the current design target. The reporting unit is the household, with unrelated individuals and families also identified. The respondent is each household member aged 15 and older; proxy responses are accepted if necessary. Original sample members aged 15 and older who move to new households are followed and information is obtained about the coresidents in their new households. Sample members who are institutionalized are tracked and interviewed subsequently if they return to a household setting.

The proposed redesign of SIPP recommended by the Panel to Evaluate SIPP calls for introducing a new panel every 2 years instead of every year; interviewing each panel at 4-month intervals for 48 months (12 waves) instead

[4] The 1993 panel will be extended for a total of 10 years, with annual interviews after the first 3 years of interviews every 4 months.

of 32 months (8 waves); and increasing the sample size per panel from 20,000 to 27,000 households. Under this design, two panels would be in the field each year (see Citro and Kalton, 1993). The redesign of SIPP proposed by the Census Bureau Senior Management Redesign Team calls for introducing a new panel every 4 years (i.e., with no overlap across panels); interviewing each panel at 4-month intervals for 48 months; and increasing the sample size per panel to 50,000 households.

The redesign of SIPP will be fully implemented in the 1996 panel, with a dress rehearsal in 1995. In addition to extending the length and increasing the sample size of each panel, features of the redesign include new samples drawn on the basis of information from the 1990 census, switching the data collection mode to CAPI/CATI, and changes in selected questionnaire items based on recommendations from the Panel to Evaluate SIPP and others. The new sample design for SIPP will also include an oversample of addresses in which the residents were below the poverty level in 1989, based on information from the 1990 census; proxy characteristics, such as housing tenure and family type, will be used for oversampling addresses for which the census long-form information on poverty status is not available.

Content

The content of the current SIPP core interview includes

- demographic characteristics;
- monthly information on labor force participation, job characteristics, and earnings;
- monthly information on public and private health insurance coverage; and
- monthly information on detailed sources and amounts of income from public and private transfer payments; information—monthly for the most part—on noncash benefits (food stamps, school lunch, etc.); and information for the 4-month period on income from assets. In total, about 65 separate sources of cash income are identified for each household member aged 15 and over, together with benefits from seven in-kind programs—for a few sources annual amounts are obtained in topical modules (see Citro and Kalton, 1993:Tables 3-1, 3-2).

Data are also collected in topical modules, which are asked once or twice in each panel, on a wide range of subjects, including

- annual income and income taxes;
- educational financing and enrollment;
- eligibility for selected programs (including expenditures on shelter, out-of-pocket medical care costs, and dependent care);
- employee benefits (1984 panel only);

- housing costs and finance;
- individual retirement accounts;
- personal history (fertility, marital status, migration, welfare recipiency, and other topics); and
- wealth (property, retirement expectations and pension plan coverage, assets and liabilities).

In addition, each panel includes a topical module with variable content designed to respond to the needs of policy analysis agencies. Topics covered to date have included characteristics of job from which retired, child care, child support, disability status of children, energy use, extended measures of well-being, functional activities, health status and utilization of health care, home health care, household relationships, housing costs and finance, job offers and reservation wage, long-term care, pension plan coverage, retirement plans, support for nonhousehold members, training, work expenses, and work schedule (see Citro and Kalton, 1993:Table 3-13).

Summary Comparisons

All four surveys clearly experience net underreporting of income.[5] The very rough comparisons of aggregate incomes for the population as a whole suggest that the March CPS captures about 90 percent of the regular cash income estimated by independent sources (Bureau of the Census, 1989a:Table A2; 1992b:Table C-1) and that the CEX (Interview Survey) in turn captures about 90 percent of the income reported in the March CPS (Cutler and Katz, 1991:Table A2). Aggregate income amounts for SIPP and the March CPS are virtually the same (Jabine, King, and Petroni, 1990:Table 10.8): SIPP obtains higher reports of nonearnings income (by about 6%), but somewhat lower reports of earnings (by about 2%) compared with the March CPS. The assumption is that some people are reporting net rather than gross earnings to SIPP. If SIPP obtained as complete reporting of earnings as the March CPS, it would capture 1-2 additional percentage points of regular income.

In inferring from comparisons of poverty rates across the surveys, it appears that income underreporting at the lower end of the distribution is most problematic in the CEX, followed by the March CPS, with the PSID and SIPP obtaining more complete reporting. Thus, in the period 1984-1991, poverty rates based on before-tax cash income from the CEX were higher than the rates from the March CPS, which, in turn, were higher than those from SIPP (see Table 5-12). Duncan and Rodgers (1991) find that poverty rates in the PSID are below those in the March CPS and comparable to those in SIPP. Duncan, Smeeding, and Rodgers (1992:Table 1) consistently find a smaller percentage of families with incomes below $15,000 in the PSID than in the March CPS; the difference ranged from 0.4 to 3.0 percentage points in the period 1967-1988. (As noted above, PSID estimates of low-income families do not appear biased by differential attrition, although underrepresentation of Hispanics may account for some of the CPS-PSID diffference.)

The evidence suggests that the greater the emphasis on income reporting in a survey, the lower is the estimated poverty rate. Thus, the less complete income reporting at the lower end of the distribution in the March CPS relative to SIPP is probably partly due to the fact that the March CPS is a supplement to a survey in which the major emphasis is on collecting monthly labor force information. Income reporting is probably particularly poor in the CEX Interview Survey also partly because the CEX is an expenditure survey, not an income survey. The secondary role of income data is evident in many aspects of the Interview Survey design and questionnaire content. Thus, income is asked for the preceding 12 months, rather than quarterly; only a few major income sources are asked separately for each adult member of the

[5] Net underreporting is a combination of underreports and overreports of income. For specific income types, classification errors also occur. Inferences of net underreporting, obtained from comparing survey estimates with those from the National Income and Product Accounts, other independent sources, or other surveys, must be made with care, as differences in definitions and processing procedures can affect the validity of the comparisons.

TABLE B-1 Summary Comparisons of CEX, March CPS, PSID, and SIPP

Feature	Consumer Expenditure Survey (Interview)	CPS (March Income Supplement)	Panel Study of Income Dynamics	Survey of Income and Program Participation
Sample Size and Design	5,000 consumer units; each unit in sample for 5 quarters; rotation group design; quarterly interviews	60,000 households; each household in sample for 8 months over 2-year period; rotation group design; monthly interviews (income supplement once per year)	9,000 families; overrepresents low-income families; continuing panel with annual interviews	40,000 households (50,000 proposed); new panel each February (every 4 years proposed); each original sample adult in panel for 32 months (48 months proposed); interviews every 4 months
Income Data	Annual data for 12 months prior to 2nd and 5th interviews; 5 sources for individuals, 11 sources for consumer unit; major in-kind benefits	Data for prior calendar year for about 35 cash and in-kind sources	Data for prior calendar year for about 25 cash and in-kind sources with specific months received	Data for about 70 cash and in-kind sources at each 4-month wave, with monthly reporting for most sources
Tax Data	Information to determine federal, state, and local income taxes; payroll taxes; property taxes; sales taxes	None	Information to determine federal and state income taxes; payroll taxes; property taxes	Information to determine federal, state, and local income taxes; payroll taxes; property taxes

consumer unit; and the total number of sources asked about is considerably smaller than in the other surveys. Experience gained in the Income Survey Development Program (ISDP—the predecessor to SIPP) and SIPP itself suggests that each of these factors hampers complete income reporting.[6]

[6] Experiments in the ISDP found that a "short" income form produced less complete reporting than the "long" form subsequently used in SIPP and that asking a single respondent about

Asset Holdings Data[a]	Detailed inventory of property holdings and household appliances; information at 5th interview on credit balances for current month and 1 year ago; information on financial asset holdings currently and 1 year ago	None, except ascertains home ownership	Regularly, information about home value and mortgage debt; occasionally, information about saving behavior and wealth	Detailed inventory of real and financial assets and liabilities once each panel; more frequent measures for assets relevant for assistance programs
Expenditure Data	Detailed quarterly data for expenditures estimated to account for 60–70% of total expenditures; global (or usual) quarterly data for expenditures	None	Monthly rent or mortgage costs; annual utility costs; average weekly food costs; child support payments	Information once or twice each panel on last month's out-of-pocket medical care costs, shelter costs (mortgage or rent and utilities), dependent care

homes. Presumably, findings of this sort stem from such phenomena as self-employed people who report zero income or losses on a business accounting basis but who have adequate cash flow for their own needs. Or some of these people may be students or others with low cash income but access to assets or other resources. Or some people may simply underreport their income, particularly if it is from "off-the-books" sources.

Scattered evidence suggests that SIPP may have fewer reporting problems of this sort, perhaps because SIPP takes more of a cash-flow approach to reporting of self-employment income. For example, in 1984, the proportion of people with income-to-poverty ratios of less than 50 percent was 38 percent of the total poverty population in the March CPS but only 29 percent in SIPP (Bureau of the Census, 1986:Table 6; Radbill and Short, 1992:Table 1). Also, SIPP data for 1984 (Radbill and Short, 1992:Table 10) showed steeper relationships of income-to-poverty ratio categories with such well-being measures as home and vehicle ownership than did the 1980 census data analyzed by Christopher Jencks (private communication). For example, home ownership ratios were as follows from the two data sources:

Unit's Income Level Relative to Poverty	Home Ownership Ratios	
	1980 Census	1984 SIPP
Income less than zero	.80	.19
Zero or positive income up to 0.50 of poverty	.38-.41	.19
Income 0.50-0.99 of poverty	.38-.46	.33
Income 1.00-1.99 of poverty	.50-.62	.49
Income 2.00 or more of poverty	.78	.65-.84

THE MARCH CPS AND SIPP COMPARED

This section provides a more detailed comparison of the March CPS income supplement and SIPP, focusing on the adequacy of information from each survey that is relevant to measuring poverty. It also discusses the ability of each survey to construct poverty measures with shorter or longer than annual accounting periods, to construct poverty measures for states, and to construct other measures related to poverty (e.g., measures of access to material goods or access to health care along the lines of work by Mayer and Jencks, 1993). Finally, it offers some comparisons of the quality of income reporting in the two surveys.

Categories of Information

Taxes The March CPS income supplement asks no questions about any type of tax payment. Currently, for use in its experimental poverty estimates, the Census Bureau models federal income taxes, state income taxes, and

payroll taxes and imputes annual tax payment amounts to the CPS records (see Bureau of the Census, 1992a; Nelson and Green, 1986).

Generally, SIPP includes twice for each panel (in the summer or fall period) a topical module that asks about tax payments for the previous year. Questions on tax filing status, number of exemptions, type of form filed (joint, single, etc.), and schedules filed (e.g., Schedule A) are answered by more than 90 percent of respondents. However, questions on adjusted gross income, itemized deductions, tax credits, and net tax liability have high nonresponse rates, primarily because respondents are asked to produce their tax forms and use them as the basis for answers to these questions, but only about one-third do so. In addition, there are nonresponse rates of 7 to 14 percent for specific items for those people who do use their tax forms to respond (Bureau of the Census, no date(a)). The Census Bureau has work in progress to develop a tax estimation model for SIPP similar to the one used for the March CPS. The SIPP tax information, even with quality problems, should help in the development of a reliable model.

Nonmedical In-Kind Benefits The March CPS asks about the benefits a household received the previous year from the School Lunch Program (how many children in the household received free or reduced-price lunches during previous year); housing assistance (whether living in public housing or receiving rent subsidy); the Food Stamp Program (how many people were covered in prior year, how many months stamps were received, and the total value of stamps for the prior year); and energy assistance (how much money was received since previous October).

SIPP obtains considerably more detailed information: monthly information on recipiency and benefit amounts for food stamps and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); information every 4 months about energy assistance, school lunch, and school breakfast; and information twice a panel about public housing and subsidized housing.

Medical Benefits/Costs The March CPS asks which household members were covered during the previous year by Medicare; Medicaid; Civilian Health and Medical Programs of the Uniformed Services (CHAMPUS), Civilian Health and Medical Programs for the Veterans' Administration (CHAMPVA), or military health care; and private health insurance. For the last, questions are asked about whether the coverage was in a plan in one's own name offered by a current or former employer or union; whether the employer or union paid for all or some of the costs; and who else in the household was covered under the plan. Separate questions are also asked about how many children under age 15 were covered during the prior year by Medicare or Medicaid, another health insurance plan, or by the insurance plan of someone not residing in the household.

SIPP obtains considerably more detailed information, distinguishing among coverage provided by the following programs: Medicare, Medicaid, CHAMPUS, CHAMPVA, military health insurance, current employer or union health insurance, former employer health insurance, and other health insurance. Coverage is ascertained every 4 months for Medicare and every month for the other programs. SIPP also determines which children in the household are covered under Medicaid or other health insurance.

With regard to out-of-pocket medical insurance and medical care costs, the March CPS obtains no information. SIPP asks each panel once about last month's unreimbursed medical care costs.

Child Care and Other Work Expenses The March CPS asks no questions about child care arrangements or costs or other work expenses. (Occasionally, supplements in other months have included questions on child care arrangements and costs.)

SIPP obtains information once each panel on last month's dependent care costs incurred to enable a household member to be employed. All panels to date have also included a module on child care that asks detailed information about child care arrangements and costs. The 1984-1987 panels included a module on work expenses, including commuting and other costs.

Child Support Payments The March CPS asks no questions about children outside the household or about payments to support such children.

All SIPP panels to date have included a detailed module on child support.

Asset Holdings The March CPS asks no questions about the value of asset holdings or liabilities, but information is obtained on whether the house is owned or being bought or is rented. Questions are also asked on total income in the prior year from interest on investments (e.g., savings accounts, certificates of deposit); dividends from stocks and mutual funds; and net income from rent (including income from rented property, roomers or boarders, and royalties).

SIPP obtains detailed information on asset ownership (and income flows) every 4 months. SIPP also obtains a detailed balance sheet of financial and property assets once each panel, and some assets are valued twice a panel (see Citro and Kalton, 1993:Table 3-2).

Nonresponse rates are low for the core asset ownership questions, for example, about 1 percent for savings accounts and stocks; but they are generally high for the questions on 4-month income flows, for example, 30-35 percent for interest and 30 percent for reinvested dividends (Jabine, King, and Petroni, 1990:Table 5.5). After imputation for nonresponse, SIPP obtains an estimated 80 percent of the dividend income reported to the Internal Revenue Service (IRS; compared with 61% in the March CPS) and an estimated

65 percent of reported interest income (compared with 79% in the March CPS, which uses an improved imputation procedure). The March CPS estimate of interest income using the old imputation procedure was only 62 percent of the IRS estimate. Both SIPP and the March CPS fall much farther short of dividend and interest income aggregates when the comparison is made to the National Income and Product Accounts (NIPA); however, the NIPA estimates require extensive adjustments, which may not be complete, for comparability with household survey estimates (see Jabine, King, and Petroni, 1990:Table 10.3)

Nonresponse rates to the questions on value of asset holdings in the topical modules are also very high, although lower than were experienced in the ISDP: 35-40 percent for value of own business, market value of stocks and mutual fund shares, and debt on these assets. After imputation, SIPP obtains higher estimates of equity in homes and motor vehicles in comparison with estimates of the Federal Reserve Board because of somewhat higher estimates of gross value and considerably lower estimates of debt in SIPP, but it obtains considerably lower estimates of equity in noncorporate business, value of financial assets, and consumer debt (see Eargle, 1990:Table D-2).[7]

Ability to Support Other Estimates

Shorter or Longer Term Measures The March CPS provides annual measures of income and poverty. Almost no information is available with which to construct longer term measures. (Because of the rotation group design, one-half of the sample for one year's March supplement is in the sample for the next year's March supplement; hence, it could be possible to construct measures of poverty status over 2 years for this subsample.) Only very limited information is available with which to construct shorter term measures: information is obtained about months of receipt of food stamps and AFDC and about weeks worked, weeks unemployed, and weeks out of the labor force in the prior year.

SIPP, because of its monthly (or 4-month) income information, can be used to construct poverty measures for months, quarters, or other periods

[7] SIPP is not alone in experiencing quality problems with the collection of asset data. A number of panel surveys provide estimates of wealth that fall short of those from the Survey of Consumer Finances, a complete survey of household wealth that includes a household sample together with a sample of high-income households drawn from the IRS Statistics of Income file who agree to participate (see Curtin, Juster, and Morgan; 1989; Juster and Kuester, 1991). Recently, the Health and Retirement Study achieved more complete reporting of asset values by a technique called "bracketing," in which holders of an asset who don't know or refuse to provide a value are asked if the value is above a certain amount; if yes, whether it is above another (higher) amount, and so on. High rates of response are obtained by this method, although the response categories are very broad (Juster and Suzman, 1993:16-20).

shorter than a year. Under the current design, SIPP can provide limited longer term measures: for example, transitions in poverty status from one year to the next or estimates of the proportion entering poverty in the first year of a panel who are still poor 1 year or 1-1/2 years later. Under the proposed redesign to extend the length of each panel, SIPP would be able to support longer term measures with accounting periods of up to 4 years. (The 1993 SIPP Panel will be extended to cover a 10-year period, with annual interviews beginning after the first 3 years of interviews every 4 months.)

State Estimates The CPS sample size and design make it possible to analyze poverty for geographic areas as well as population groups. The Census Bureau recently published state poverty rates (Bureau of the Census, 1992c:Table B). Standard errors for yearly estimates were small for large states (e.g., less than 5% for California and New York in 1991) but high for small states (e.g., 20% for Delaware and New Hampshire in 1991). Standard errors were smaller for 3-year average poverty rates (e.g., 3.5% for California and 15% for New Hampshire).

SIPP is less able to provide reasonably reliable state poverty estimates with the current sample size of about 40,000 households (based on combining two panels) and a design that does not disproportionately sample smaller states. The redesign will increase the sample size to 50,000-55,000 households, but it still may not provide as reliable state estimates as does the March CPS. The proposed oversampling of low-income households in SIPP, beginning with the 1996 panel by using information from the 1990 census, may increase the reliability of the data for detailed poverty analysis.

Related Measures The March CPS does not obtain information that would enable the development of alternative measures of economic well-being, such as an index of access to material goods or an index of health status and access to health care.

SIPP also does not regularly obtain information that would permit the development of measures of access to a wide range of material goods. However, it does ascertain twice in each panel ownership of the residence and of a vacation home or undeveloped lot, together with information on the make, model, and year of each car, van, or truck owned by someone in the household and whether the household owns a motorcycle, boat, recreational, or other vehicle. Occasionally, a topical module has obtained additional information. For example, Wave 4 of the 1984 SIPP panel asked about housing conditions, including use of a list of consumer durables—range, oven, refrigerator, freezer, washer, dryer, dishwasher, black-and-white television, color television, air conditioning (see Radbill and Short, 1992:Table 10). Wave 6 of the 1991 SIPP panel and Wave 3 of the 1992 panel included a module on extended measures of well-being. This module has questions on consumer durables (e.g., whether the family has a clothes washer or dryer); living condi-

tions (e.g., whether the house is in good repair and the neighborhood is safe); ability to meet expenses for basic needs (e..g, whether the family was ever evicted for nonpayment of rent); and sources of help (e.g., how much help you could expect to get from family living nearby if you were sick).

SIPP has often obtained information on health status and access to health care in topical modules. For example, Wave 3 of the 1984 panel asked about self-reported health status, days in last 4 months sick in bed, number of doctor visits in the last 12 months, and number of hospital nights in the last 12 months.

Quality of Income Data

A key issue in assessing the adequacy of the March CPS or the SIPP for measuring poverty is the quality of the estimates. Although some research on data quality has been done for the March CPS and considerably more research has been done for SIPP, it is not possible at this time to provide an estimate of the total error in the poverty or other income statistics from either survey. There is some comparative information available on what might be termed internal indicators of quality, such as population coverage ratios and household and item response rates, that may indicate potential problems in survey estimates. There is also some limited comparative information on aggregate statistics from the two surveys, such as the percentage of total income of various types that is captured, compared with independent sources. Such comparisons do not identify underlying components of error and must be made with care, given different definitions and procedures between the two surveys and between the surveys and other sources.

Despite limitations, the available information on data quality (discussed below) shows clearly that there is reason to be concerned about the quality of income and poverty statistics from both SIPP and the March CPS. Some indicators, such as item nonresponse rates and amounts of Social Security and other income types collected, in comparison with independent estimates, favor SIPP, while other indicators, such as household nonresponse rates and amount of wages and salaries collected, in comparison with independent estimates, favor the March CPS. Overall, however, SIPP appears to be doing a somewhat better job of measuring income, particularly at the lower end of the income distribution. SIPP's more frequent interviews and detailed probing for receipt of different income sources appear to be identifying more recipients of many income types than the March CPS, although the dollar amounts reported are not always more complete in SIPP than in the CPS. Perhaps more important, SIPP is arguably in a better position to take steps to improve income quality, because of its focus on income and program participation, whereas the March CPS is necessarily constrained as an appendage to a labor force survey. Indeed, no changes to the March income supplement were even

considered as part of the recent redesign of the main CPS (except those changes, such as the sample redesign and the introduction of CAPI/CATI, that apply to the entire survey), and the research program on data quality is limited. SIPP will undergo a major redesign to improve the usefulness of the data (notably the extension of each panel to 48 months), which will likely include changes and improvements to the questionnaire. SIPP also has an active research program to investigate and improve data quality (see Jabine, King, and Petroni, 1990).

Population Undercoverage

It is well known that household surveys rarely cover the population as well as the decennial census (see Shapiro and Bettin, 1992; Shapiro and Kostanich, 1988). SIPP and the March CPS are no exception. Thus, even after adjustment for survey nonresponse, the SIPP data for March 1984 covered only 85 percent of black men and 91-93 percent of all other people when compared with census-based population estimates, while the March 1984 CPS covered only 84 percent of black men and 90-94 percent of all others. By age, black men in the 20-39 age categories were generally the worst covered. Coverage ratios were even worse in March 1986 for black men for both SIPP and the March CPS—80 and 82 percent, respectively (Jabine, King and Petroni, 1990:Tables 10.12, 10.13). More recent data indicate that the situation has not improved: the March 1992 CPS covered only 79 percent of black men, 87 percent of black women, and 90-95 percent of white and Hispanic men and women (Coder, 1992a:Table C-1).[8]

1990—it is substantial for some population groups. In 1980, an estimated 9-10 percent of black children under age 5 were missed, as were about 15 percent of middle-aged black men (Fay, Passel, and Robinson, 1988:Tables 3.2, 3.3; Robinson, 1990). (The decision was recently made to use census-based population estimates that are adjusted for the census undercount as weighting controls for the CPS and SIPP.)

Second, the ratio adjustments do not correct for characteristics other than age, sex, and ethnic origin on which the undercovered population might be expected to differ from the covered population. Fay (1989) analyzed within-household undercoverage in the CPS relative to the decennial census, using a 1980 CPS-census match. His results are suggestive of ways in which weighting adjustments do not adequately compensate for household survey undercoverage. For example, he finds that about one-fourth of adult black men who are counted in the census but not in the CPS are household heads, whose households should be categorized as married-couple households in the CPS but instead are categorized as households headed by unmarried women.

The correlates of undercoverage (besides age, race, and sex) are not definitely established. However, analysis of the 1980 census postenumeration survey and of other survey, administrative records, and ethnographic data suggests that undercount rates are higher for the following groups: household members other than the head, spouse, and children of the head; unmarried people; people living alone or in very large households; and people residing in central cities of large metropolitan areas (see Citro and Cohen, 1985; Fein, 1989). In addition, there is evidence that the rate of undercount increases as household income decreases.

Overall, these tentative findings suggest that minorities, unattached people, and low-income people are at much greater risk of not being covered in household surveys than other people and, hence, that undercoverage affects SIPP and March CPS-based estimates of poverty. Both the overall poverty rate and, perhaps more important, the distribution of poverty across groups may be affected. The Census Bureau has recently begun a research program to investigate the undercoverage problem in greater depth and take steps to reduce it (Shapiro and Bettin, 1992).

Household and Person Nonresponse

Relative to many other surveys, the CPS obtains high response rates. Yet, 4-5 percent fail to respond to the CPS, and another 9 percent of people in otherwise interviewed households fail to respond (Citro, 1991:26). In addition, a considerable number of people, although responding to the basic CPS labor force questionnaire, do not respond to the March income supplement. Nonresponse to the supplement is treated together with other cases of failing to answer one or more specific questions (see below). To adjust for whole

household nonresponse to the basic CPS, the Census Bureau increases the weights of responding households; to adjust for person nonresponse, it imputes a complete data record for another person with similar demographic characteristics. These procedures assume that respondents represent the characteristics of nonrespondents; this assumption has not been adequately tested.

Like all household surveys, SIPP experiences household nonresponse, and like all longitudinal surveys, it suffers cumulative sample loss or attrition at each successive interview wave (some households that fail to respond at an interview wave are subsequently brought back into the survey). In addition, it experiences "type Z" nonresponse—the failure to obtain information, either in person or by proxy, for individual members of otherwise cooperating households.

Attrition in SIPP to date has been highest at the first and second interviews—5-8 percent of eligible households at Wave 1 and 4-6 percent of eligible households at Wave 2. Thereafter, the additional loss is only 2-3 percent in each of Waves 3-5 and less than 1 percent in each subsequent wave. By Wave 6 (after 2 years of interviewing), cumulative sample loss is 18-20 percent of eligible households; by Wave 8, it is 21-22 percent (Bowie, 1991). The Panel to Evaluate SIPP estimated that total sample attrition at the end of 12 waves (4 years) might be 25 percent (Citro and Kalton, 1993:102). The attrition experience in SIPP is quite comparable to that in the ISDP (Nelson, Bowie, and Walker, 1987) and the PSID (with the exception that, as noted above, the PSID experienced a larger sample loss at the first two waves).

Attrition reduces the number of cases that are available for analysis—including the number available for longitudinal analysis over all or part of the time span of a panel and the number available for cross-sectional analysis from interview waves—and thereby increases the sampling error of the estimates. More important, the people who drop out may differ from those who remain in the survey. To the extent that adjustments to the weights for survey respondents do not compensate for these differences, estimates from the survey may be biased.

The available evidence does suggest that people who drop out of SIPP differ from those who stay in the survey. Studies of nonresponse from the 1984 SIPP panel show that household noninterview rates after the first wave tended to be higher for renters, for households located in large metropolitan areas, and for households headed by young adults. Individuals who did not complete all of the interview waves, compared with those who did, tended to include more residents of large metropolitan areas, renters, members of racial minorities, children and other relatives of the reference person, people aged 15-24, never-married people, and people with no savings accounts or other assets (Jabine, King, and Petroni, 1990:35-37, Table 5.4). A recent analysis of attrition from the 1990 SIPP panel obtained similar results (Lamas, Tin, and Eargle, 1994). This study found that attrition was more likely to occur among

young adults, males, minority groups, never-married people, poor people, and people with lower educational attainment.

In addition, more limited evidence suggests that the current noninterview weighting adjustments do not fully compensate for differential attrition across groups. One evaluation of the procedures to adjust for household nonresponse at each wave developed two sets of weights for Wave 2 households in the 1984 panel—one set based on all Wave 2 households and one set based just on those Wave 2 households that provided interviews at Wave 6. Comparing Wave 2 estimates from these two samples showed that the latter set produced higher estimates of median income and fewer households with low monthly income than those produced with the former set, evidence that the weights do not adequately adjust for higher attrition rates among low-income households (Petroni and King, 1988). A subsequent study that compared samples from the 1985 panel of all Wave 2 households and those that provided interviews at Wave 6 obtained similar findings (King et al., 1990).

With regard to annual estimates of poverty from SIPP, one study (Lamas, Tin, and Eargle, 1994) found that the inclusion of people with missing waves, using an imputation process, produced somewhat higher poverty rates than the use of complete reporters. Approximately one-sixth of the difference between annual poverty rates in SIPP and the March CPS is apparently due to attrition bias.

It is important to note that the current cross-sectional nonresponse adjustments in SIPP make only minimal use of the information that is available from previous waves for many current nonrespondents. Also, in constructing longitudinal files from SIPP panels, the Census Bureau assigns zero weights to original sample members who missed only one or a few waves in addition to those who missed all or most waves. The Census Bureau has recently committed itself to an intensive program of research to improve the weighting adjustments for attrition as part of the decision to move to 4-year panels for SIPP with no overlap (Weinberg and Petroni, 1992).

Item Nonresponse

In addition to household and person nonresponse, there is substantial item nonresponse in the March CPS. The Census Bureau imputes as much as 20 percent of the total income in the CPS. For some income sources, imputation rates are even higher—as much as one-third of nonfarm self-employment income, interest, and dividend payments are imputed (Bureau of the Census, 1989a:Table A-2; Bureau of the Census, 1992b:Table C-1).

SIPP compares favorably with the March CPS on item nonresponse rates: overall, only 11 percent of total regular money income for 1984 was imputed in SIPP, compared with 20 percent in the March CPS. The SIPP and March CPS imputation rates for earnings were 10 percent and 19 percent, respec-

tively; for public and private transfers, 12 percent and 21 percent, respectively; and for property income, 24 percent and 32 percent, respectively (Jabine, King, and Petroni, 1990:Table 10.8; see also Citro and Kalton, 1993:Tables 3-4, 3-5 for comparisons of nonresponse rates for such specific income sources as AFDC and SSI).

The imputation process maximizes the available sample size for analysis from a survey by providing filled-in records for respondents whose records would otherwise have to be discarded if key analytical variables were missing. However, the process can introduce error. No definitive evaluation has been conducted of the imputation procedures used in the March CPS or SIPP; however, available evidence suggests that the procedures are a source of error and could be improved.

The Census Bureau currently applies very complex procedures, which it refers to as statistical matches, to impute values in the March CPS for whole groups of variables, such as income and employment-related items. The records are classified by a number of characteristics, and the record that is the best match is selected as the "donor" to supply the missing values to the record requiring imputation (the "host"). The Census Bureau's statistical matching procedures have, over the years, replaced somewhat less complex "hot-deck" imputations for more and more items. In the hot-deck method, the data records are arrayed by geographic area and processed sequentially, and the reported values are used to update matrices of characteristics. A record with a missing item has the most recently updated value assigned from the appropriate matrix. Hot-deck methods are largely used for imputation in SIPP.

David et al. (1986) compared the Census Bureau's imputations of earnings in the March CPS with a regression-based imputation—using data from the Internal Revenue Service from a 1981 exact-match CPS-IRS file as the measure of truth—and found that the CPS methods performed quite well in reproducing the overall shape of the earnings distribution. However, they and other analysts have determined that the CPS imputations are less successful for small groups, such as minorities and specific occupations (Coder, no date: Lillard, Smith, and Welch, 1986). Coder (1991), in an exact match of the March 1986 CPS with IRS records for married couples with earnings, found that records with imputations for CPS earnings contributed significantly to the overall underestimate of wages and salaries in the CPS in comparison with the IRS tax returns. Thus, while mean CPS earnings in cases with no imputations were 98 percent of mean IRS earnings, mean CPS earnings in cases with imputations were only 89 percent of mean IRS earnings. Also, while 95 percent of cases with no imputations had CPS earnings within 1 decile of IRS earnings, only 66 percent of cases with imputations were in this close agreement.

The available evidence suggests that the SIPP imputation procedures could also be improved. Several studies have focused on the population eligible for assistance programs and have identified problems because the current proce-

dures do not take low income or receipt of program benefits into account in imputing program-related variables. Doyle and Dalrymple (1987) found that the imputation of income in the 1984 SIPP panel for households reporting receipt of food stamps produced a larger proportion of such households with high monthly incomes that would make them ineligible for Food Stamp Program benefits than households that reported both their cash income and food stamps. Allin and Doyle (1990) compared program participants from the 1984 SIPP panel whom they simulated to be eligible for food stamp benefits with participants whom they simulated to be ineligible because of excessive incomes or asset holdings: they found that only 5 percent of the eligible participants but 28 percent of the ineligible participants had some or all income or asset values imputed.

Coder (1992b), in an exact match of the 1990 SIPP panel with IRS records for married couples with earnings, found results similar to the 1986 CPS-IRS exact-match study reported above. Records with imputations for SIPP earnings contributed significantly to the overall underestimate of wages and salaries in the SIPP in comparison with the IRS tax returns. Thus, while mean SIPP earnings in cases with no imputations were 94 percent of mean IRS earnings, mean SIPP earnings in cases with imputations were only 85 percent of mean IRS earnings. Also, while 88 percent of cases with no imputations had SIPP earnings within 1 decile of IRS earnings, only 75 percent of cases with imputations were in this close agreement.

Other Sources of Error

A number of other error sources have been identified in the March CPS and SIPP, particularly with regard to poverty and related income statistics, although no definitive results are available on their effects.

The CPS, like other surveys with a rotation group design, is subject to rotation group bias, in that respondents who are newer to the survey give different responses than do respondents who have been in the survey for a longer period. For example, the unemployment rate estimated for households in the incoming CPS rotation group each month is 7 percent higher than the average for all eight rotation groups (Bailar, 1989:Table 6). There has been no analysis of how rotation group bias might affect poverty and income estimates from the March supplement.

Reporting errors, as distinct from nonresponse, are also a potential problem. Very few record checks that compare survey reports with independent sources (e.g., tax or program records) for the same people have been conducted for the March CPS. Coder (1991) conducted such a record-check study in his 1986 exact-match CPS-IRS analysis. He noted that the net CPS aggregate underestimate of 2-3 percent masked widespread over- and underreporting of amounts and that the imputation procedures did little to correct

the bias from nonresponse. Despite these errors, the CPS distribution of earnings was very similar to that derived from the IRS. The most serious error problems were concentrated at the bottom and top of the distribution.

Estimates of poverty and income from the March CPS are affected by the fact that the sample comprises persons present at the March interview who are asked about income in the preceding calendar year. Thus, income from people who died during the year or otherwise left the survey universe is missed entirely (this is not true for SIPP). Also, family composition is measured as of the March following the income reference year, and no information is obtained about intrayear changes in composition. For example, two people found to be married as of March will be classified as a married couple for the entire income reference year and assigned the combined income of both spouses for that year. However, this treatment is misleading, with regard to classification both by family type and by income level, if, in fact, the couple's marriage took place after the start of the income year. The limited available evidence suggests that annual poverty rates in the CPS may be biased upwards to some extent by the mismatch of family composition and income (see Czajka and Citro, 1982; Williams, 1987; see also Lamas, Tin, and Eargle, l994).

In SIPP, researchers have looked at the equivalent of rotation group bias, namely time-in-sample or conditioning effects. As a panel progresses, respondents may acquire new knowledge that affects their behavior: for example, they may apply for benefits from government assistance programs as a direct consequence of learning about such programs from the survey. They may also gain experience with the questionnaire that leads them to give either less accurate or more accurate answers than in earlier interviews. However, studies conducted with SIPP to date suggest that conditioning effects are scattered and of limited effect (see, e.g., Pennell and Lepkowski, 1992).

Some record-check studies have been conducted with SIPP, including the 1990 SIPP-IRS exact match (Coder, 1992b). Marquis and Moore (1990a, 1990b) carried out a record-check study that matched SIPP records in four states from the first two waves of the 1984 panel with records from eight state and federal programs (AFDC, food stamps, unemployment insurance, worker's compensation, federal civil service retirement, Social Security, SSI, and veterans' pensions and compensation). The results showed negatively biased participation rates for most programs: that is, net underreporting of participation, although there were overreports as well as underreports. For most programs, there appeared to be relatively little bias in reporting of benefit amounts for those who correctly reported their participation. In one state, a large proportion of AFDC recipients incorrectly reported their benefits as general assistance.

One problem identified in SIPP and other longitudinal surveys is the "seam" phenomenon, in which respondents are more likely to report changes

(e.g., going off or on a welfare program) between pairs of months that span two interviews (e.g., for SIPP, months 4-5, 8-9, 12-13, etc.) than between pairs of months for which data are collected from the same interview. The seam problem affects most variables for which monthly data are collected in SIPP—often strongly. For example, in the first year of the 1984 SIPP panel, over twice as many nonparticipants reported entering the Social Security program between seam months than nonseam months (Jabine, King, and Petroni, 1990:Table 6.2). The reasons for the occurrence and extent of the seam phenomenon are not well understood, but it clearly results in errors in the timing of transitions in SIPP and the duration of spells of program participation (and perhaps of poverty). It may or may not result in errors in the number of transitions that occur within a given period. For example, in the case of food stamps, total exits and entrances from SIPP are close to the rates derived from food stamp administrative records. In contrast, whether due to the seam effect or other factors, entrance rates from SIPP for SSI are significantly higher than those shown by program records (Jabine, King, and Petroni, 1990:59-60). The Census Bureau has pursued research and testing of alternative questionnaire designs and interviewing procedures that could reduce the seam problem and produce more accurate income reporting overall (see, e.g., Marquis, Moore, and Bogen, 1991). To date, there have been few positive results.

Aggregate Comparisons

Aggregate comparisons of income estimates from SIPP and CPS, like comparisons of internal indicators of data quality, show a mixed picture. On balance, SIPP seems to be doing a somewhat better job of income reporting, but not for all income types. Moreover, it may be that the gains in SIPP are not holding up over time.

Comparisons of 1984 estimates from the 1984 SIPP and March 1985 CPS showed SIPP as a percentage of CPS as follows (Jabine, King, and Petroni, 1990:Table 10.8):

Total money income	100.1
Regular money income	99.9
Earnings	98.2
All other	106.0
Public and private transfers	111.6
Property income	103.1
All other regular money income	37.0
Lump-sum payments	N.A. (not collected in CPS)

SIPP performed better than the March CPS with the notable exception of earnings. (The low ratio for all other regular money income is presumably due to higher levels of reporting of specific income types in SIPP than in the

March CPS.) Census Bureau analysts assume that many SIPP respondents are reporting their net paychecks rather than their gross earnings as requested by the survey.

Coder and Scoon-Rogers (1994) reported comparisons for detailed income sources for 1984 and 1990. These comparisons indicate that some of the gains in income reporting seen in SIPP at the outset of the survey may no longer be occurring. However, they noted that the 1990 SIPP panel may not be comparable to the 1984 panel because it contained an added sample, carried over from the 1989 panel, of households headed by single mothers and minorities. The weighting adjustments for these added cases may be problematic.

As with the review of internal indicators of data quality, it is difficult from the available comparisons of aggregates to draw conclusions about the implications for estimates of poverty and related income statistics. Perhaps the most telling summary indicator available is the fact, noted above, that SIPP poverty estimates are consistently several percentage points below those from the March CPS. Lamas, Tin, and Eargle (1994) found that only about one-sixth of this difference could be explained by attrition bias in SIPP. Another one-sixth of the difference appears due to more accurate measurement of family composition during the income reporting year in SIPP than in the March CPS. The remaining two-thirds difference, it is hypothesized, is explained by more complete reporting of income in SIPP for the lower end of the income distribution. In that regard, respondents to SIPP report more sources of income than respondents to the March CPS; they also report higher amounts for such income sources as Social Security, Railroad Retirement, SSI, unemployment compensation, veterans' payments, and child support payments, all of which are important to the low-income population. However, reporting of AFDC and other cash welfare is currently no more complete in SIPP than in the March CPS (Coder and Scoon-Rogers, 1994:Table 1). Clearly, much more analytical work needs to be done, including work to look at differences in income reporting among population groups within and across the surveys and the development of a complete time series of poverty and related income statistics from SIPP for comparison with the March CPS.

APPENDIX

C

The Interdependence of Time and Money

In the panel's primary focus on the measurement of poverty in the United States, we discuss the rationale for, and the measurement of, a concept of poverty based on the lack of family resources needed to obtain an adequate level of food, clothing, shelter, and a little more. Setting the poverty threshold, we suggest, should be informed by the actual level of expenditure on these commodities by consumer units, with the threshold determined as an appropriate fraction of the median expenditure by a reference family type, with a small additional amount to allow for other expenditures.

The concept of poverty that we contend should be used as the U.S. official poverty measure—economic poverty—is based on having the money or near-money resources needed for consumption. We stress at several points in the volume that this concept of poverty should not be considered the only relevant measure of deprivation. A measure of economic poverty should be supplemented by other measures that might reflect psychological deprivation, exposure to extreme risks of physical harm, illiteracy, lack of adequate medical care, and so forth.

In this appendix we address an issue that is neither as separable from the measure of economic poverty as psychological or even health-related factors are, nor as easily incorporated into an economic measure as the flow of services from owned homes might be: how to treat the valuable resource of time. Because of the unique problems posed by this one issue, we devote this appendix to considering it alone.

"TIME IS MONEY"

The old adage that "time is money" essentially says it all, but unfortunately it does not tell one how to measure the value of time when measuring the available economic resources in a family unit. Nor does it tell one how to take account of the fact that two families with similar economic resources might have vastly different time resources that somehow should be taken into account in determining their material well-being. In this section we first illustrate the dilemma and the seemingly inadequate strategy of just ignoring the value of time when measuring a family's command over resources. Next we show actual expenditure data that reinforce the concern that it is not appropriate simply to count all the dollars of income and ignore all the time resources.

Illustration

To illustrate the issue simply, consider two households. Household A has one adult; household B has two adults; neither has any children. The official (1992) poverty thresholds for these households (averaged by age of the head) are $7,143 and $9,137, respectively. This pair of thresholds implies that household B requires 128 percent as much income as household A to be at comparable poverty thresholds.

With these numbers, we can illustrate the question of time; see Table C-1. Since there are 168 hours in each week, household A has a total of 168 hours available every week, and B has twice that much time, 336 hours, since both adults have 168. Suppose that within each week every person requires 70 hours for sleep, personal hygiene, and eating—8 hours for sleep and 2 hours for personal hygiene and eating. (We use these values only for illustration and profess no expertise about their magnitudes; if the numbers are changed, the same points apply.) Subtracting this 70 hours per week from the total of 168 leaves just under 100 hours per person for discretionary use, that is, for all other activities.

Next, assume that the adults in households A and B each have a wage rate of $3.57. We selected this arbitrary wage rate to yield exactly $7,143 in annual income per adult if that adult worked 40 hours each week for 50 weeks of the year. This wage rate permits the full-time earner in household A to achieve exactly the poverty threshold level of income. Subtracting that 40 hours from the discretionary weekly hours, the adult in that household has now 58 hours available for all remaining activities. But for household B, the two adults only need to be employed a combined total of 51 hours per week to earn the poverty threshold level of income. One of the two might work full time, for 40 hours a week, and the other work part time for about 11 hours a week; or they might both work part time, averaging a little over 25 hours of work per

TABLE C-1 A Comparison of the Value of Time in Two Households

Factors in Valuing Time	Household Composition	
	A: One Adult	B: Two Adults
Official Poverty Threshold, 1992[a]	$7,143	$9,137
Relation of Thresholds	1.00	1.28
Time Allocation, Weekly Hours		
Total	168	336
Personal care (subtract)	–70	–140
Discretionary, net	98	196
Needed to earn poverty threshold @$3.57/hour (subtract)	–40	–51
Available, net	58	145
Available per person, net	58	72.5
Valuing the Nonmarket Time		
Hours available per week	58	145
Annual value @$3.57/hour	$10,353	$25,882
Assuming No Scale Economies in Nonmarket Time		
Scale	1.00	2.00
Monetary equivalent	$10,353	$20,706
Extra resources for B	—	$5,176
Assuming the Same Scale Economies in Nonmarket Time as in Money Usage		
Scale	1.00	1.28
Monetary equivalent	$10,353	$13,252
Extra resources for B	—	$12,630

[a]Weighted averages from Bureau of the Census (1993c:Table A).

week. After subtracting these work hours, household B has 145 hours available for all remaining activities.

If the two households have exactly met their poverty threshold level of income, and all adults have the same (arbitrarily set) hourly wage rate, then the two households are equally well off in terms of economic resources. That is, after all, just what these poverty threshold levels are supposed to achieve. But notice that in household B, the remaining discretionary time is a total of 145 hours or 72.5 hours per person; in household A it is 58 hours. This fact highlights the underlying issue: having set poverty threshold levels of income for households A and B that reflect the economies of scale in living together (putting aside whether the scale economies are correctly measured or not) necessarily results in the larger household's having more discretionary time per adult than the smaller household. Thus, the two households are not equally

well off at the poverty thresholds, even though those thresholds were set at levels that were intended to achieve just that condition. After meeting their personal care needs and working enough (at a similar wage rate) to earn the poverty threshold level of income, each person in household B has 72.5 free hours, but the person in household A has only 58 hours. It looks as though the two people in household B are better off than the person in household A.

This particular illustration makes the point simply: if one ignores time in measuring poverty, one overlooks an important resource that can be converted into money. If we had used larger households in the illustration, the point could be made with even larger discrepancies. (Different values for the personal care needs or for the scale economies or for the wage rate in the illustration do not qualitatively change the conclusion.)

Moreover, since time is used in earning the money that meets the poverty thresholds, time is not just an example of a separate and independent resource that has been overlooked or set aside. Unlike many other resources, this resource—time—is generally correlated with the money earned. In many cases, it is traded for money in the labor market. Thus, for many family units, time is systematically and negatively correlated with money: those who have more leisure or home time have less money, and those who spend more time in the labor market earning money have correspondingly less discretionary time for other activities.

To return to the illustrative example above, one can get an estimate of the monetary value of the extra time in household B in comparison with household A (see Table C-1). To do so, one needs to decide two things: what money value to use in measuring the time value of the discretionary time, and what (if any) scale economies to assume in the use of that nonmarket time. For the former, we use the market wage rate of $3.57. (Again, the point made here could be made with many other arbitrarily set nonmarket time valuations.) Regarding scale economies, we use two extreme assumptions to suggest bounds on the point: first, that there are no scale economies in nonmarket time use; second, that the economies of scale are the same as the scale economies in using money.

The 58 discretionary hours available to household A have the value $10,353, and the 145 discretionary hours in household B have the value $25,882. Under the assumption that there are no scale economies in using this nonmarket time, household B would need twice as much time as A to achieve the same per capita outcome, which is $20,706 worth of time, leaving as a residual an extra bit of time in household B that is valued at $5,176. That extra resource—the time valued at $5,176—seems to be inconsistent with viewing the two households as equally well off. Under the assumption that scale economies are the same for nonmarket time as for purchased commodities, household B needs only $13,252 in time value to obtain what household A obtains ($10,353 $\times$ 1.28); this implies that household B has an extra bit of time

that is valued at $12,630. Again, household B seems to be better off than household A, and that is inconsistent with the goals that were set in establishing poverty thresholds for the two households. These dollar values on the available discretionary time simply quantify the point made earlier: the household with more discretionary time appears to be better off than the other one.

Expenditure Data

The illustrative example depicts the logic that if both time and money have value, and if poverty thresholds are defined on the basis of equivalence in money income only, then no matter how the money equivalents are set, the combined value of the time and money that households have at their disposal is misspecified. If the money alone is correctly calculated, when one looks at the value of time there is an apparent inconsistency.

In this section, we discuss a related aspect of the interdependence of time and money: those families that have more than one adult employed in the job market appear to spend at least some, and perhaps a sizable portion, of the second earner's added income on goods and services that are associated with earning that money. Thus, it is arguable that some portion of those earnings is not in fact a net increase in the family's real income and does not reflect a real increase in command over resources. If this is so, it raises the question of how to adjust for this simple substitution of money for nonmarket time when one measures a family's level of income.

The relevant data on expenditures are not hard to find, but the implications for what should be done to account for the differences are not so easy to find. Lazear and Michael (1980b) compare two sets of households from the 1972-1973 Consumer Expenditure Survey (CEX), both with two adults and no children, one set with one earner and the other with two earners. The before-tax income for these two sets differed by 35 percent (with the two-earner couples having the higher income, of course). In terms of total current consumption, however, the difference was only 17 percent. That is, the two-earner families both faced higher taxes and saved a higher portion of their income, so in terms of spending on goods and services, the difference, on average, was far less than the difference in gross (before-tax) income. More revealing, the two-earner families spent much more than one-earner families on items that can be considered market substitutes for home-produced goods: restaurant expenditures were 55 percent higher, dry cleaning services were 42 percent higher, and women's clothing was 60 percent higher, while expenditures on food at home were actually 15 percent lower. (Rental expenditures by renters were 12 percent higher.)

It appears that much of the income earned by the second earner is spent on making it possible to earn that income. Thus, the net addition to the family's resources is less than the added income, since that income is at least

partially offset by less time in the nonmarket activities by that second earner. On the basis of this evidence, Michael (1985:136) argues: "Almost certainly the impact on real income [of the second earner's wage earnings] is a small fraction of the change in money income."

A more recent article by Jacobs, Shipp, and Brown (1989) uses the 1984-1986 CEX data and includes families that have children, so they can observe expenditures on child care, which the Lazear and Michael study did not consider. This study concludes (p. 15): "When a wife becomes a second earner, husband-wife families spend more on work-related and timesaving items such as child care and food away from home." They exploit the quarterly data from the CEX and compare family spending patterns in the second quarter of the survey year to that in the fifth quarter, looking specifically at those families in which the wife began employment between those two times and comparing the changes to a control group in which the wife was not employed throughout the year. The results were inconclusive in this strategy, but when a multivariate regression model was used, controlling for household characteristics, they find (Jacobs, Shipp, and Brown, 1989:21):

> Families in which the wife is employed spend significantly more on food away from home, child care, women's apparel and gasoline and motor oil than do families in which the wife does not work outside the home.

Another recent study by Hanson and Ooms (1991) uses the 1980-1983 CEX data and suggests a further refinement. They conclude that the two-earner families that have relatively low levels of husband's earnings actually expend proportionately more on "work-related expenditures and taxes" (an increment of 69 percent) in comparison with families with middle levels of husband's earnings (an increment of 56 percent) or to families with upper levels of husband's earnings (an increment of only 29 percent). So to disregard work-related expenditures may be particularly problematic for lower income families.

Discussion

All these studies simply show the not-remarkable fact that when a second adult in the family enters the work force and earns income, some of that income is spent buying in the marketplace goods and services other families secure by nonmarket efforts. A skeptic might well ask: "So what? Isn't this also the case for the first earner? If the household had zero earners, wouldn't that household be inclined to do even more nonmarket production—growing its own food, sewing its own clothing, and so forth?" This point is correct, but a poverty threshold implicitly assumes some amount of nonmarket time and some likely amount of labor market effort: thus, a threshold of, say, $15,000 in money income for a family of some particular size and structure has embedded within it some implicit amount of time in the home. But when one

begins to compare households of different sizes and structures, one confronts the fact that there is a violation of the implicit assumption that the differences in money somehow also correspond to the differences in available nonmarket time. When it is clear that the nonmarket time in different families is far from proportionate to the money income in those two families, one may become uneasy in treating those families as equally well off.

Consider the extreme example in which one family obtains the threshold level of money from labor market earnings and another family of identical structure and size receives the same income completely from government assistance programs. It is discomforting to characterize these two families as exactly equally well off: the second family has much more nonmarket time available than the working family, and somehow this should be taken into account.

The illustration of households A and B above emphasized that when one looks only at the available money, a family's available total resources, including discretionary time, is almost surely misspecified. The expenditure data from the several CEX studies make the same point in reverse: some of the money earned is used to facilitate the earnings itself, and other of the money earned is used to buy in the marketplace goods and services that are typically produced at home by families with less earnings. Both these observations emphasize the intricately intertwined linkages between money and time. Time is money and to some degree the two are interchangeable: to disregard time is to misspecify the available resources in the family unit. Yet time and money are not fully interchangeable in all cases, of course; there are many uses of money that have no own-time substitute. For instance, no amount of one's own time can heal an abscessed tooth—a dentist is needed and, for that, money (or, at least, barter) is essential.

In an effort to measure economic poverty, it is easiest to just ignore nonmarket time, and treat money as money, but the panel finds this inadequate. In fact, we argue in the text that near-money—food stamps, school lunches, and housing subsidies, for example—should be counted as part of a family's resources in comparing resources with the poverty threshold. In the proposed poverty measure, we convert near-money to money equivalence. If time is near-money, perhaps it, too, should be converted to money in the measurement of a family's resources. Similarly, in the text we argue that some expenditures are necessary to obtain labor market earnings—child care and other work-related expenses, for example—and should be subtracted from earnings in measuring the available money resources. In the proposed poverty measure, we convert gross money into net money available to expend on food, clothing, and shelter, and a little more. If time at home can be used to obtain food or clothing or shelter, perhaps it, too, should be valued in measuring a family's resources to obtain these commodities up to the poverty threshold levels.

If one argues for subtracting expenditures that substitute for time at home doing certain tasks, such as child care, when measuring the relevant level of family income for determining poverty status, then it seems logical to argue that time at home does legitimately enter into the determination of the relevant measure of money income in determining poverty status. If so, the issue becomes what level of nonmarket time is implicitly assumed in setting the poverty threshold levels of money income for a household of one adult, or for a family with two adults and no children, or a family with one child, and so on. To be frank, we do not know how to incorporate time in a feasible and manageable way. Consequently, we do not know how to adjust for more or less time as one measures money resources to compare with those poverty thresholds. We next review two suggestions from the literature.

RESEARCH APPROACHES

Time Poor: A Measurement

Perhaps the best statement of the problem with ignoring time that has an associated suggestion regarding its solution is Vickery (1977), who stressed the importance of time as a resource and suggested a two-dimensional poverty definition. As shown in Figure C-1, Vickery suggested that a poverty threshold should have both a minimum money level, such as M_0 in that figure, and also a minimum time level, such as T_0, and with some tradeoff, as depicted by the curved line segment AB. Households with resources to the left of T_0 would be considered time-poor, and those below M_0 would be considered monetarily poor; those to the right and above M_0, T_0, and AB would be considered not poor. Of course, setting the level T_0 and the tradeoff AB would require judgment, as does setting the minimum income level, M_0. (Vickery had some suggestions about these minimum levels.)

We suggest that a key element in this determination of poverty would be a household's ability to convert time into money—the wage rate of the adult(s) in the unit—which we depict at two levels in lines L and H in the figure. As drawn, the household with the lower wage rate, L, would be considered in poverty; the household with the higher wage rate, H, would not be considered in poverty. Notice that the second household might choose a position along its wage line at which its nonmarket time was in fact below time poverty, but it could as well select a position along its wage line that put its income below money poverty. In neither case would the household be considered in poverty, however, since these choices are discretionary.

Notice that this strategy for defining which households are in poverty places the burden of the definition of poverty heavily on the notion of the wage rate, the best indicator of the potential tradeoff between time and money. To define poverty by the wage rate instead of by the actual income received

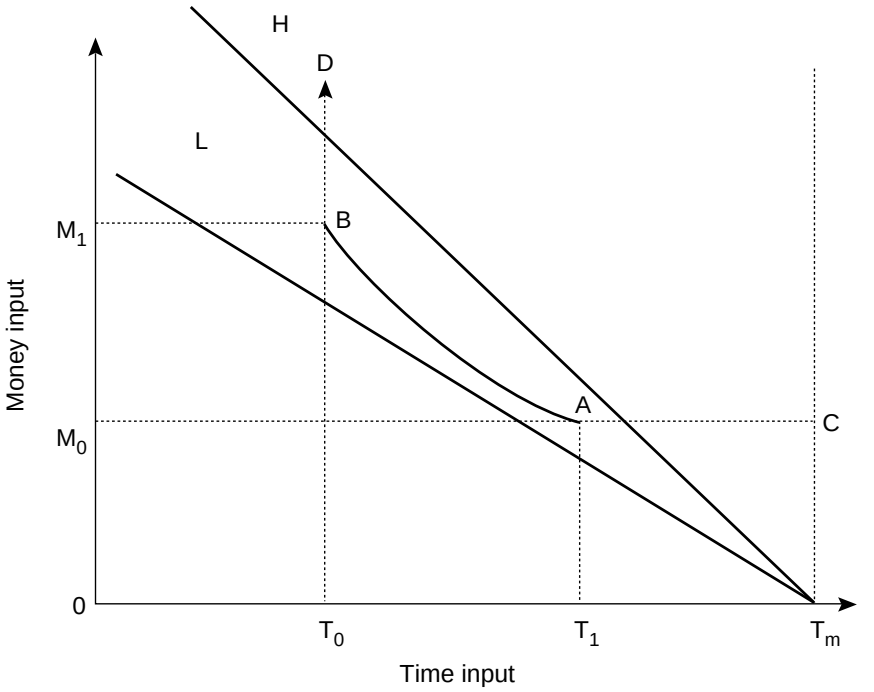

FIGURE C-1 Time and money tradeoffs in the poverty threshold for a household. SOURCE: Adapted from Vickery (1977).

can, in fact, resolve much of the problem of disregarding time, but it places a very heavy burden on the determination of the relevant, available wage rate for the adults in the household. Even when that wage is determined, there is the issue of whether it is in fact available and, if so, for how many hours. In fact, using a given wage rate as depicted in Figure C-1 assumes that the adult can trade any number of hours for dollars at that wage rate. But the presence of unemployment, of various rigidities in hours of work on certain jobs, and the high rate of job turnover, especially among those who are less skilled, causes one to doubt that assumption. And if that wage is not actually available, this theoretically appealing strategy for measuring poverty would be quite difficult to implement empirically. Considering the complexity of measuring the relevant wage rate for all persons and units and of knowing the constraints on its availability across hours of work and from week to week, we as a panel do not recommend adopting this strategy for measuring poverty. In light of the practical difficulties it raises, we do not consider it a feasible alternative. It is possible that with further research this analytically attractive alternative would become tractable and implementable, but it is not so today.

Calculating Earnings Capacity

The use of the wage rate as the key determinant of the poverty status of a household unit is very similar to the solution to the problem advocated by Haveman in a series of articles (see Garfinkel and Haveman, 1977; Haveman, 1992, 1993; Haveman and Buron, 1991, 1993). The strategy suggested by Haveman and his colleagues is to estimate the earnings capacity of the adults in the household and to use that capacity, for a person employed in a full-time job minus the costs incurred in having that job, as the estimate of income against which a poverty threshold is compared. As Haveman (1992:12) puts it: "Does a family have the skills and capabilities to earn its way out of poverty were it fully to use them?" If so, the suggestion is to define that family as not in poverty; if not, to define that family as in poverty.

This suggestion is quite similar to the suggestion above of relying on the level of the market wage rate (adjusting for the necessary costs of employment) as the measure of poverty status. Haveman has, in fact, implemented his suggestion, using the Current Population Survey (CPS), to estimate the earnings capacity of the families and unrelated individuals in the CPS and then to consider the composition and magnitude of poverty so defined.

There can be philosophical differences about whether it is preferable to measure poverty on the basis of the actual income received or the potential income that might be received if the family unit "played by the rules" and worked for pay as much as some other family does. Once the allocation of time becomes a focus, this distinction between actual and potential earnings is relevant. We as a panel have taken no position on the matter of the preferable measure, because we stress a preemptive issue: estimating the wage potential with the precision necessary to implement this method of measuring official poverty in the United States is not yet feasible. Neither the wage rate that might be earned if a job were available, nor the likelihood of finding a job that offered that wage rate for the number of hours preferred by the individual, is a calculation that can easily be made. Thus, we do not take a position on the matter of the relative attractiveness of using a wage rate definition or an actual income definition of family resources. We urge continued research to address this matter, but do not consider it sufficiently resolved to warrant implementation now.

A few of the issues not yet resolved—which convinced us that earnings capacity is not yet feasible as an alternative to income for determining poverty status—include the following:

(1) Is it preferable to use the actual earnings of those who have full-time earnings or to use an imputed earnings potential for those families as well as for those who have no actual earnings? Imputation is surely necessary for those who do not have actual earnings, but then it is not clear how to link these imputed cases to the many others with full-time or part-time earnings.

(2) Is it preferable to use the actual wage rate for units with part-time employment and scale up their potential earnings to full time or to use an imputed wage rate for them as well?

(3) How does one build into the estimates derived from imputation an appropriate variability based on the error term of the estimation model for those units that require imputation?

(4) How should one estimate the capacity for those who have retired or are elderly and have not had a history of earnings at an earlier age?

Furthermore, if earnings capacity were fully measurable and brought into the measurement of poverty, then other analytic issues would be raised. For example, by introducing leisure time as a commodity that is purchased with the available resources of time and money, there is then a need to take account of the fact that those with a high wage rate face a relatively high price for that commodity. Until it is clear how to estimate the capacity to earn with greater precision and consistency than is now the case, an earnings capacity definition of resources should not be the basis of the poverty measure. Even when enough is known about how to integrate time and money resources in the measurement of poverty, it will also be necessary to consider how that introduction might alter the level that is set as the threshold for poverty. It would not be reasonable to simply add the value of some or all nonmarket time without considering how that modification on the resource side should affect the level of the threshold.

CONCLUSION

There is at present no feasible way to improve the measurement of poverty by incorporating the time allocation of families. We encourage further research that might yield a better solution in the near future, but we see no way adequately to address this perplexing issue now. The earnings capacity estimate of available income, suggested by Haveman and colleagues, and the wage rate usage as suggested above in the context of Vickery's analytic figure, both address the issue, but they are not warranted as a replacement for the current strategy of estimating income directly. Although there are important contributions in the literature regarding how Americans actually spend their nonmarket time (e.g., see Juster and Stafford, 1985; Robinson, 1977; and Walker and Woods, 1976), and analytically how to understand its allocation (e.g., Becker, 1965), we know of no implementable solution to the concern addressed here.

Thus, many concerns about the treatment or nontreatment of time are unresolved. One of these concerns is that some families are probably considered to be impoverished that could spend enough time working for pay to earn enough to get themselves out of poverty but do not do so. At the other

end of the spectrum is concern that some families probably devote so much of their limited time and energy to earning money, that despite having income a little above the poverty threshold, they are "time poor" and quite impoverished. Both of these concerns, among others, need to be addressed by further work on the proper method for introducing the value of time into the measurement of poverty.

APPENDIX

D

Assistance Programs for People with Low Incomes

This appendix describes assistance programs, partly or wholly financed by the federal government, that provided income support, near-cash income support, or other benefits and services to people with low income through 1994. Table D-1 categorizes 70 programs by the type of test they use to determine income eligibility for program benefits. In fiscal 1992 the expenditures of these programs totaled $279 billion. Of these 70 programs,

- 14 of them (20%), which account for 2 percent of the expenditures, use the poverty guidelines (or a multiple of them) as the sole criterion of income eligibility (see Part A of Table D-1);
- 13 of them (19%), which account for 56 percent of the expenditures, accord eligibility to people already participating in another program, such as Aid to Families with Dependent Children (AFDC) and Supplemental Security Income (SSI), and also permit other people to qualify by comparing their incomes to the poverty guidelines (see Part B of Table D-1);[1]

[1] In some programs, the comparison is to a multiple of the poverty guidelines if that level is higher than a percentage of state median income or a percentage of the lower living standard income level defined by the U.S. Department of Labor. The lower living standard income levels are published by the department's Employment and Training Administration for 25 metropolitan areas and for metropolitan and nonmetropolitan components of the four census regions, Alaska, and Hawaii. These levels represent the Bureau of Labor Statistics lower level family budget, developed for 1967 on the basis of 1960-1961 consumer expenditure data and last published for 1981, updated for price changes. In 1993, 70 percent of the lower living standard income level for a family of four varied from $14,300 in nonmetropolitan areas of the South to $23,870 in metropolitan areas of Hawaii; in comparison, the federal poverty guideline for a family of four in 1993 was $14,350 (Burke, 1993:Tables 12,14).

TABLE D-1 Expenditures on Government Assistance Programs for Low-Income People, by Type of Income Test, Fiscal 1992

Program[a]	Expenditures[b] (million $)	
A. *Programs that link eligibility solely to the federal poverty guidelines*		
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	2,600	
Maternal and Child Health Services Block Grant	1,059	
Child and Adult Care Food Program	624	
Community Health Centers	537	
Community Services Block Grant	438	
Special Programs for Students from Disadvantaged Backgrounds (TRIO Programs)	385	
Legal Services	350	
Summer Food Service Program for Children	203	
Title X Family Planning Services	150	
Foster Grandparents	66	
Migrant Health Centers	58	
Senior Companions	29	
Follow Through	9	
Special Milk Program (free segment)	2	
Total	6,510	(2%)
B. *Programs that link eligibility to the federal poverty guidelines and also to participation in other programs (e.g., AFDC, SSI, or food stamps)*		
Medicaid	118,067	
Food Stamps	24,918	
School Lunch (free and reduced-price segments)	3,895	
Head Start	2,753	
Training for Disadvantaged Adults and Youth[c]	1,774	
Low-Income Home Energy Assistance Program (LIHEAP)[d]	1,594	
Summer Youth Employment and Training Program[c]	1,183	
Job Corps[c]	955	
School Breakfast (free and reduced-price segments)	782	
Senior Community Service Employment Program	395	
Weatherization Assistance	174	
Commodity Supplemental Food Program (CSFP)	90	
Vocational Education Opportunities, Disadvantaged Activities	N.A.	
Total	156,580	(56%)
C. *Programs that link eligibility to a percentage of the local area median income defined by the Department of Housing and Urban Development*		
Section 8 Low-Income Housing Assistance	12,307	
Low-Rent Public Housing	5,008	
Rural Housing Loans (Section 502)	1,468	
Child Care and Development Block Grant	825	
Section 236 Interest Reduction Payments	652	
Rural Rental Housing Loans (Section 515)	573	

TABLE D-1 *Continued*

Program[a]	Expenditures[b] (million $)	
C.—*continued*		
Rural Rental Assistance Payments (Section 521)	320	
Section 101 Rent Supplements	54	
Section 235 Homeownership Assistance for Low-Income Families	45	
Rural Housing Repair Loans and Grants (Section 504)	24	
Rural Housing Preservation Grants (Section 533)	23	
Home Investment Partnerships[e]	3	
Total	21,302	(8%)
D. *Programs that have their own income eligibility standards (or that link eligibility to participation in another program)*		
Aid to Families with Dependent Children (AFDC)	24,923	
Supplemental Security Income (SSI)	22,774	
Earned Income Tax Credit (EITC)	9,553	
Medical Care for Veterans Without Service-Connected Disability	7,838	
Stafford Loans (formerly Guaranteed Student Loans)	5,683	
Social Services Block Grant (Title XX)	5,419	
Pell Grants	5,374	
Foster Care	4,170	
Pensions for Needy Veterans, Their Dependents, and Survivors	3,667	
Job Opportunities and Basic Skills Program (JOBS) (successor to the Work Incentive Program—WIN)	1,010	
Child Care for AFDC Recipients (and ex-recipients)	755	
"At Risk" Child Care (to avert AFDC eligibility)	604	
College Work-Study Program	595	
Supplemental Educational Opportunity Grants (SEOG)	520	
Adoption Assistance	402	
Emergency Assistance (EA) to Needy Families with Children	268	
The Emergency Food Assistance Program (TEFAP)	250	
Perkins Loans	156	
Assistance to Refugees and Cuban/Haitian Entrants (cash component)	139	
State Student Incentive Grant (SSIG) Program	127	
Dependency and Indemnity Compensation (DIC) and Death Compensation for Parents of Veterans	68	
Fellowships for Graduate and Professional Study	63	
Health Professions Student Loans and Scholarships[f]	48	
General Assistance to Indians	46	
Medical Assistance to Refugees and Cuban/Haitian Entrants	42	
Farm Labor Housing Loans (Section 514) and Grants (Section 516)	29	
Social Services for Refugees and Cuban/Haitian Entrants	26	
Indian Housing Improvement Grants	20	
Rural Housing Self-Help Technical Assistance Grants (Section 523) and Rural Housing Site Loans (Sections 523 and 524)[g]	9	
Ellender Fellowships	4	
Child Development Associate Scholarship Program[h]	1	
Total	94,583	(34%)

continued on next page

NOTE: The poverty guidelines are issued annually by the U.S. Department of Health and Human Services (HHS). They are developed by smoothing the official poverty thresholds for different size families. For historical reasons, the guidelines are higher than the thresholds for Alaska (by 25%) and Hawaii (by 15%). A few programs use the official thresholds rather than the guidelines.

[a]Programs are listed in decreasing order of fiscal 1992 expenditures.

[b]Expenditures include federal, state, and local outlays for benefits and administrative costs.

[c]These programs also permit eligibility on the basis of 70 percent of the Department of Labor lower living standard income level for specific areas when that level is higher than the poverty guidelines.

[d]This program also permits eligibility on the basis of 60 percent of state median income.

[e]This program links eligibility to 75 percent of state median income for families of the same size.

[f]This program includes a provision to forgive loans to needy students who fail to complete

criterion for income eligibility have uniform nationwide eligibility standards (with the exception of Alaska and Hawaii, for which the guidelines are higher than in other states). Ten other programs (e.g., veterans' pensions, EITC) also have uniform standards. The remaining 46 programs have standards that vary by geographic area. Some of these programs, as a sole eligibility criterion or as one of their criteria, explicitly have a comparison of income with a standard that varies by geographic area: either a percentage of the local area median income defined by HUD, a percentage of the Department of Labor lower living standard income level, or a percentage of state median family income. Other programs (e.g., AFDC) have eligibility standards that vary because they are set by the states (or localities). Still other programs (e.g., Head Start, School Lunch) have varying eligibility standards in practice because one of their criteria is participation in another program, such as AFDC, in which individual states or localities set the standards (however, *benefits* do not usually vary by area for these programs).

Below are brief descriptions of all 27 programs that have as at least one of their income eligibility criteria a comparison of income with the poverty guidelines. The descriptions are organized alphabetically within categories of types of benefits: medical, food, education, other services, jobs and training, and energy. The last section of the appendix describes a few of the major cash and near-cash assistance programs that use a test of income eligibility other than the poverty guidelines. Descriptions are included for AFDC, the EITC, housing assistance, SSI, and veterans' pensions. The information in this appendix is derived largely from Burke (1993), supplemented by U.S. House of Representatives (1994).

PROGRAMS THAT TIE ELIGIBILITY TO THE POVERTY GUIDELINES

Medical Programs

Community Health Centers Centers receive grant money to provide primary care services to medically underserved populations, defined on the basis of such factors as the ratio of primary care doctors to population, infant mortality rate, percentage of elderly, and percentage of families with incomes below the poverty level. Families with incomes below 100 percent of poverty are entitled to free services; those with incomes between 100 and 200 percent of poverty are required to make partial payment; and those with higher incomes are required to make full payment for services.

Maternal and Child Health Services Block Grant (Title V) Funds are provided to the states to undertake various activities to improve the health status of mothers and children (e.g., prenatal care, well-child care, dental care, immunization, screening for lead poisoning, etc.). States determine eligibility

criteria, but, according to federal law, they are supposed to target mothers and children with low incomes or limited availability of health services. Low income is defined as income below 100 percent of the federal poverty guidelines. States cannot charge low-income people for services under the block grant; they can charge others for services, based on a sliding scale that takes account of family income, resources, and size.

Medicaid Traditionally, states have been required to provide Medicaid benefits to elderly, blind, and disabled people who receive SSI and to parents and children who receive AFDC. Hence, the income eligibility guidelines for these two programs (see next section) govern Medicaid eligibility for these groups.

There are various exceptions and modifications to the general rule that SSI and AFDC recipients are eligible for Medicaid. For example, states can—and 12 states do—apply the more restrictive criteria that were in effect in 1972 for low-income elderly, blind, and disabled people before the implementation of SSI. Conversely, states must extend Medicaid eligibility to certain groups who do not receive AFDC but who meet AFDC eligibility requirements: examples are first-time pregnant women, members of two-parent families in which the principal earner is unemployed, and people who do not receive a payment because the amount would be less than $10. States must also continue Medicaid coverage for 4-12 months for families that stop receiving AFDC. States must also continue Medicaid coverage for certain groups of people who lose SSI eligibility.

In addition, states may choose to cover the "medically needy," that is, people who are categorically eligible for AFDC or SSI but whose incomes are somewhat above the AFDC or SSI limits. People can be deemed medically needy if their incomes fall below a state-set standard that does not exceed 133 percent of the state's AFDC maximum benefit or if their incomes fall below AFDC or SSI limits after deducting out-of-pocket medical expenses.

Beginning in the mid-1980s, Congress has allowed—and, in some cases, required—states to provide Medicaid benefits to people on the basis of comparing their family incomes with the federal poverty guidelines rather than with AFDC or SSI standards. A growing number of people are becoming eligible on the basis of these income-to-poverty ratios, although the majority of Medicaid beneficiaries are still AFDC or SSI recipients (see, e.g., U.S. House of Representatives, 1994:Table 18-2). At present, states must extend Medicaid benefits to pregnant women and children up to age 6 with family incomes below 133 percent of the federal poverty guidelines. States must also cover all children under age 19 who were born after September 1983 and whose family incomes are below 100 percent of the poverty guidelines. In addition, states may provide coverage to pregnant women and children under age 1 with family incomes between 133 and 185 percent of the poverty

guidelines. Finally, states must provide limited coverage (and may provide full coverage) for elderly and disabled people who are eligible for Medicare and whose family incomes are below 100 percent of the poverty guidelines.

Migrant Health Centers Centers receive grant money to provide services in areas with large numbers of migratory farm workers. Free service is given to people whose principal employment is in agriculture on a seasonal basis and whose family incomes are below 100 percent of the federal poverty guidelines; partial payment, on a sliding scale, is required for people with incomes between 100 and 200 percent of the poverty guidelines.

Title X Family Planning Services Clinics must provide family planning services to all people who request them. Priority must be given to people from families with low incomes. Services are provided free of charge to people with incomes below 100 percent of the federal poverty guidelines; partial payment is required for people with incomes between 100 and 250 percent of the poverty guidelines.

Food Programs

Child and Adult Care Food Program Free meals in child and adult day care centers are available to those whose household incomes are not above 130 percent of the federal poverty guidelines. Those whose household incomes are above 130 percent, but not above 185 percent, of the poverty guidelines are eligible for a reduced price meal.

Commodity Supplemental Food Program Commodities are provided to local projects in 63 areas that offer food packages to low-income mothers, children, and elderly persons. People eligible for food packages include pregnant women, breastfeeding women, postpartum women, infants, and children up to age 6 who qualify for food, health, or welfare benefits under a government program for low-income people. Depending on state requirements, such people may also have to be designated as being at nutritional risk or may have to live in the service area. Also eligible are elderly people with incomes below the federal poverty guidelines.

Food Stamps Households composed entirely of recipients of AFDC or SSI are automatically eligible for food stamps, so long as they meet food stamp employment-related requirements (e.g., certain nonworking able-bodied adult household members must register for employment and accept a suitable job if offered one). Hence, the income eligibility requirements for these two programs apply (see next section).

Households that are not automatically eligible for food stamps on the basis of receiving AFDC or SSI must meet certain income and asset requirements. Households without elderly or disabled members qualify if they have gross

monthly incomes below 130 percent of the poverty guidelines (gross income excludes a few kinds of payments, such as the EITC) or net monthly incomes below 100 percent of the poverty guidelines. Households with an elderly or disabled member need only meet the net income test. Elderly people are defined as those aged 60 or older; disabled people are generally those receiving such government disability benefits as Social Security or SSI disability payments. Countable liquid assets (including a portion of the value of vehicles) cannot exceed $2,000 for households without elderly or disabled members and $3,000 for households with an elderly or disabled member.

Net monthly income for households without elderly or disabled members is gross monthly income minus: a standard deduction that does not vary by household size ($131 a month in fiscal 1994); 20 percent of any earned income (to allow for taxes and work expenses); out-of-pocket dependent care expenses, when necessary for work or training, up to $200 per month for each dependent under age 2 and up to $175 for other dependents; and shelter expenses that exceed 50 percent of counted income after all other deductions up to a legislatively set ceiling ($231 a month as of July 1994).

Net monthly income for households with an elderly or disabled member is gross monthly income minus: the standard, earned income, and dependent care deductions noted above; shelter expenses that exceed 50 percent of counted income after all other deductions, with no ceiling; and out-of-pocket medical care expenditures for the elderly or disabled member that exceed $35 a month.

School Lunch and School Breakfast Programs For the School Lunch Program, all school children are eligible to receive at least a partly subsidized meal in participating schools and institutions. Children whose gross family incomes are at or below 130 percent of the federal poverty guidelines are eligible for a free lunch and children in households receiving AFDC or food stamps are automatically eligible for a free lunch. Children whose gross family incomes are more than 130 percent but not more than 185 percent of the guidelines are eligible for a reduced-price lunch (not more than 40 cents per meal). Other children pay whatever the full school price is for a lunch, which, however, is less than cost because of the federal subsidy.

The School Breakfast Program operates similarly, except that the subsidy for breakfasts for non-needy children is smaller. The income eligibility guidelines for school breakfasts are the same as for school lunches. Almost all participants in the School Breakfast Program—98 percent—are children who receive free or reduced-price breakfasts; in contrast, 48 percent of participants in the School Lunch Program receive free or reduced-price lunches.

Special Milk Program Children in participating schools and residential child care institutions whose gross family incomes are at or below 130 percent of the federal poverty guidelines are eligible for free or partially subsidized

milk. Participating schools can elect to provide free milk or to require partial payment. The Special Milk Program operates mainly in schools and institutions that do not participate in the School Lunch or School Breakfast Programs.

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Supplemental foods are provided to low-income pregnant women, new mothers, nursing mothers, infants, and children up to age 5 who are judged to be at nutritional risk by a local agency. Income limits for WIC are to be no less than those set by states or local agencies for free or reduced-price health care so long as they are no greater than 185 percent and no less than 100 percent of the federal poverty guidelines.

Summer Food Service Program for Children There are no individual income requirements for participation. Eligibility for benefits is tied to the location and type of sponsor operating a program. Eligible programs must operate in areas where at least 50 percent of the children are from families with incomes at or below 185 percent of the federal poverty guidelines.

Education Programs

Follow Through Children from families whose incomes are below 100 percent of the official poverty guidelines are eligible for special educational services in the early elementary grades. At least 60 percent of participants must have participated in Head Start or similar preschool programs with a focus on pupils from low-income families.

Head Start Children from families with incomes below 100 percent of the federal poverty guidelines are eligible for Head Start, as are children from families receiving AFDC or other public assistance. No more than 10 percent of participating children, including handicapped children, can be from nonpoor families.

Special Programs for Students from Disadvantaged Backgrounds These programs (e.g., Upward Bound, Talent Search) are for college students. Eligibility criteria differ somewhat for the various programs, but generally two-thirds of participants must be low-income, first-generation college students. Low income is defined as taxable income below 150 percent of the Census Bureau poverty thresholds.

Vocational Education Opportunities, Disadvantaged Activities (Perkins Act) Vocational education services and activities are available to disadvantaged individuals, including members of economically disadvantaged families, migrants, people with limited English proficiency, and high school dropouts or potential dropouts. States are required to adopt a uniform method to determine who is economically disadvantaged by using one or more of the follow-

ing tests: annual incomes below 100 percent of the official poverty line, eligibility for free or reduced-price school lunch or food stamps, eligibility for AFDC or other public assistance, receipt of a Pell Grant or comparable state needs-based education assistance, or eligibility for participation in programs under the Job Training Partnership Act.

Other Service Programs

Community Services Block Grant Beneficiaries of programs funded by the Community Services Block Grant (which include nutrition services, emergency services, and employment services) must have incomes no higher than 100 percent of the federal poverty guidelines, or, at state option, 125 percent of the poverty guidelines.

Legal Services The eligibility level for Legal Services is set by individual programs, but incomes may not exceed 125 percent of the federal poverty guidelines unless specifically authorized by the Legal Services Corporation. However, there are exceptions to the income limits in specified circumstances: for example, services can be provided to people with incomes between 125 and 187.5 percent of the federal poverty guidelines if they have exceptional medical care expenses, child care or other work-related expenses, certain debts or expenses associated with age or disability, or meet other criteria. Individual programs are also required to establish "specific and reasonable" limits each year on assets that income-eligible people may hold, taking into account the special needs of elderly, institutionalized, and handicapped people.

Jobs and Training Programs

Foster Grandparents People who are at least 60 years of age, no longer in the regular work force, and of low income are eligible for a stipend plus transportation and meal costs. The low-income test is met for people with family incomes below 125 percent of the federal poverty guidelines or below 100 percent of the guidelines plus any SSI supplement that is provided by the state, whichever figure is higher.

Job Corps Economically disadvantaged youths aged 14 through 21 who live in a disorienting environment are eligible to receive basic education, vocational skills training, counseling, work experience, and health services. The definition of "economically disadvantaged" (which applies to all programs authorized by the Job Training Partnership Act) includes recipients of AFDC or other cash welfare; recipients of food stamps; people with countable family incomes below 100 percent of the federal poverty guidelines or below 70 percent of the lower living standard income level, whichever is higher; foster children whose care is supported by the government; and handicapped

adults whose own incomes meet the program's limit but whose families' incomes exceed it. The definition of countable income excludes unemployment compensation, child support, and welfare payments.

Senior Community Service Employment Program People aged 55 and over with low incomes are eligible for part-time community service jobs for which their wages are subsidized by the federal government. People meet the income eligibility criteria if their countable incomes are less than 125 percent of the federal poverty guidelines or if they are receiving regular cash welfare. Countable income is gross income minus welfare payments, disability payments, unemployment benefits, trade adjustment benefits, capital gains, certain veterans' payments, and one-time unearned income payments or unearned income payments of fixed duration. There is an extra $500 deduction for reenrollees.

Senior Companions Volunteers at least 60 years of age, no longer in the regular work force, and of low income are eligible for a stipend plus transportation and meal costs. The definition of low income is the same as in the Foster Grandparents Program.

Summer Youth Employment and Training Program Education, training, and summer jobs are available for economically disadvantaged youths aged 16-21 who are unemployed, underemployed, or in school, and, at local option, economically disadvantaged youths aged 14-15. The definition of economically disadvantaged is the same as in the Job Corps.

Training for Disadvantaged Adults and Youth This program of education, training, and supportive services must have 90 percent of its participants who are economically disadvantaged. The definition of economically disadvantaged is the same as in the Job Corps.

Energy Programs

Low-Income Home Energy Assistance Program (LIHEAP) LIHEAP is designed to help low-income households meet their energy-related expenses, including home heating or cooling bills, weatherization, and energy-related emergencies. The federal government makes block grants to the states, which have considerable discretion in regard to determining eligibility and benefits. States can elect to make LIHEAP payments to households that receive benefits from AFDC, SSI, or the Veterans' Administration. They can also provide benefits to households with incomes of less than 150 percent of the federal poverty guidelines or 60 percent of the state's median income, whichever is greater. The income ceiling for eligibility cannot be less than 110 percent of the poverty guidelines.

States must ensure that the largest benefits go to households with the

lowest income and highest energy costs relative to their incomes, taking account of family size. LIHEAP benefits cannot be counted as income for purposes of determining eligibility or benefits for any other federal or state assistance program. In fiscal 1992, average benefits for heating assistance ranged widely, presumably as a function of climate conditions as well as state choices regarding eligibility and benefit levels, from $39 in Texas to $459 in Massachusetts.

Weatherization Assistance Weatherization aid is available to families receiving AFDC, SSI, or state assistance program benefits or whose family incomes are below 125 percent of the federal poverty guidelines.

SELECTED PROGRAMS WITH THEIR OWN INCOME ELIGIBILITY STANDARDS

Aid to Families with Dependent Children AFDC is a state-administered program with funding provided by both the states and the federal government through a matching provision. The program was established by the Social Security Act of 1935. In order to qualify for federal funding, a state must establish a standard of need that defines in monetary amounts the basic needs the state wishes to recognize as appropriate for an assistance standard of living; however, neither the components of the standard nor the methods for setting the standard are prescribed by federal law or regulation. Each state must apply this standard uniformly and statewide in determining financial eligibility for assistance, although it may vary the standard to account for family size or composition, area cost-of-living differentials, or other factors.

Although states are required to establish need standards, they may adopt lower payment standards for benefits: they may set a maximum payment that is below the need standard; they may pay a percentage of the difference between a family's income and the need standard; or they may pay a percentage of the need standard.

Recently, a number of states have lowered their payment standards to satisfy budget constraints and to try to induce recipients to adopt preferred behaviors. As examples, some states no longer provide an additional benefit for an additional child, or they condition benefit amounts on such actions as recipients' obtaining immunization shots for their children. (See Wiseman, 1993, for a list of these kinds of changes in payment standards for which states had waivers from the federal government approved or pending in 1992.)

Over the years, amendments to the law, court decisions, and federal regulations have formally reaffirmed the states' autonomy in setting AFDC benefit levels. In particular, the 1967 amendments to the Social Security Act affirmed the right of states to set payment maximums and to apply "ratable reductions" in order to set benefits lower than their standards of need. The

1967 amendments included a provision to require states to update their need standards to reflect cost-of-living increases since the standards were adopted; however, states were not required to pay benefits consistent with these increases. No such requirement to adjust need standards for inflation has been legislated since 1967.

Although the states have very wide latitude in setting their need and payment standards, federal regulations have always been more specific about the resource side of the equation for determining AFDC eligibility and benefits (see U.S. House of Representatives, 1994:327-329; Solomon and Neisner, 1993). Currently, to receive AFDC payments, a family must pass two income tests. First, a family's gross monthly income cannot be higher than a certain percentage of the state's need standard. This provision was first adopted in 1981, with the limit initially set at 150 percent and raised to 185 percent in 1984. Second, a family's net or countable monthly income must not exceed 100 percent of the need standard or 100 percent of the payment standard in the many states in which the payment standard is below the need standard.

Families must also meet an asset test. Federal regulations currently limit assets or "countable resources" to $1,000 per family, excluding a home and car (provided the equity value of the car does not exceed $1,500). States must also exclude burial plots from countable resources and may exclude such essential items for daily living as clothing and furniture (U.S. House of Representatives, 1994:331). Finally, families must meet various other state and federal requirements (e.g., provisions for work, education, or training).

The definition of countable income for AFDC is gross income minus various exclusions. Currently, states must deduct from gross income the following unearned income components: the first $50 of monthly child support receipts; certain Department of Education grants and loans to college students; the value of Department of Agriculture donated foods; benefits from child nutrition programs; and payments to participants in Volunteers in Service to America (VISTA), some payments to certain Indian tribes, and Agent Orange settlement payments. In addition, states must deduct from gross income the following earned income components: a standard work expense deduction of $90 per month and actual child care expenses up to a ceiling of $175 per month per child ($200 for a child under age 2 and less for part-time work). For AFDC recipients who obtain employment subsequent to enrollment, the states must deduct an additional $30 of earnings per month for the first 12 months and an additional one-third of remaining earnings for the first 4 months. The states must also ignore any benefits from the EITC. Finally, although states have the authority to count food stamp benefits as income for purposes of determining AFDC benefits, no state currently does so. Rather, the process works the other way: AFDC benefits are counted as income for purposes of determining food stamp benefits.

In January 1994 the AFDC need standards for the 50 states and Washing-

ton, D.C., showed considerable variation, from $1,648 per month in New Hampshire to $320 per month in Indiana, with a median value of $574 (and a coefficient of variation of 41%). The maximum AFDC benefit showed similar variation from $923 per month in Alaska to $120 in Mississippi, with a median value of $366 (and a coefficient of variation of 40%).[4] The maximum combined AFDC and food stamp benefit showed less variation, from $1,208 in Alaska to $415 in Mississippi, with a median value of $658 (and a coefficient of variation of 22%); see Table 8-1. In relation to the poverty thresholds, in January 1994 the median state AFDC need standard was 60 percent of the poverty threshold for a family of three, and the median state AFDC maximum payment was 38 percent of that threshold (see Table 8-3).

Earned Income Tax Credit The EITC was enacted in 1975 to provide tax relief to low-income working families and improve incentives to work. It is refundable, thereby serving as a kind of negative income tax. The EITC was recently expanded to increase the basic benefit for families with more than one child and to provide an EITC for childless workers. For tax year 1994 the maximum EITC credit is 26.3 percent of earnings of $7,750 for a family with one qualifying child and 30 percent of earnings of $8,425 for a family with two or more qualifying children. To qualify, a child must be related to and live with the taxpayer(s) more than 6 months of the year and must be under age 19 (or 24 if a full-time student) or be permanently and totally disabled. For families with higher adjusted gross incomes (from $11,000 up to a ceiling of $23,750 (one child) or $25,300 (two or more children) for tax year 1994), the amount of the credit is reduced fractionally for each added dollar of income. The maximum credit for childless workers is 7.65 percent of earnings of $4,000, and it phases out at adjusted gross income of $9,000. There is no geographic variation in the EITC (as is true of all provisions of the federal income tax). EITC benefits cannot be counted as income for determining eligibility or benefits for AFDC, Medicaid, SSI, food stamps, or low-income housing programs.

Section 8 Low-Income Housing Assistance and Low-Rent Public Housing The Section 8 program provides rent subsidies to low-income families and single people, defined as those with incomes at or below 80 percent of the area median (adjusted for family size) as determined by the Department of Housing and Urban Development. A large proportion of subsidies is supposed to go to "very low income" households—those with incomes below 50 percent of the area median.

Countable annual income is defined as gross annual income (which excludes a few sources, such as earnings of children, foster care payments, educa-

[4] All dollar amounts are for a three-person AFDC unit, consisting of a caretaker and two children.

tional scholarships, and lump sums) minus the following: $480 for each family member (other than the head or spouse) who is under 18, older and disabled, or a full-time student; $400 for an elderly family member; medical expenses of more than 3 percent of gross income for an elderly family member; and child care and handicapped assistance expenses necessary for a family member to work or further his or her education.[5] For families with net family assets above $5,000 (including the net cash value of real property, savings, stocks, bonds, and other forms of investment but excluding furniture and automobiles), the greater of the following is included in countable income: actual income from all net family assets or a percentage of their value based on the current passbook savings rate.

Section 8 families pay a rent equal to 30 percent of their countable income or 10 percent of gross income, whichever is higher, and the federal government makes up the difference.

The low-rent public housing program operates in the same manner as the Section 8 program, but the benefit is a rent subsidy for a unit in a public housing project rather than a rent subsidy for a unit of the recipient's choosing.

Supplemental Security Income The SSI program provides monthly cash benefits to needy aged, blind, and disabled people. SSI began operating in 1974, replacing the former federal-state programs for old-age assistance, aid to the blind, and aid to the permanently disabled. About 40 percent of SSI recipients are over age 65; the remainder are disabled. Children can qualify for benefits on the basis of disability, and children can also benefit indirectly because they live in a household with one or more SSI recipients.

SSI is unique among current assistance programs in that it provides a nationwide federal benefit (indexed each year for inflation) that is supplemented by most states. State supplementation is required for people who received benefits under one of the former federal-state programs that were more generous than the federal SSI benefits, although relatively few SSI beneficiaries receive supplementation for this reason. States can also choose to supplement the federal benefit for other beneficiaries in their state, and only seven states do not currently provide some form of supplementation. In the aggregate, 44 percent of SSI beneficiaries receive some type of state supplement (U.S. House of Representatives, 1994:222-223).

To be eligible for SSI benefits, aged, blind, or disabled people must have countable monthly incomes that do not exceed the federal benefit standard plus the applicable state supplementation. Countable income is gross income minus: $20 of unearned income (not counting such means-tested income as

[5] Legislation in 1990 liberalized the deductions allowed from gross income by increasing the dependent allowance from $480 to $550 per dependent; allowing a deduction of 10 percent of earned income; and extending the medical expense deduction to nonelderly families. However, these liberalizations were only to take effect if approved in an appropriations measure, which, to date, has not occurred.

veterans' pensions or government-provided in-kind assistance) and the first $65 of earned income plus one-half of remaining earnings. Blind recipients are also allowed to deduct reasonable work expenses, and disabled recipients are also allowed to deduct work and living expenses caused by their disabilities. SSI recipients must apply for other benefits, such as Social Security, for which they are eligible. Also, if a recipient is living in another person's household and receiving support and maintenance from that person, that support is valued as income to the recipient in the amount of one-third of the federal benefit standard. The income of an ineligible spouse or parent also figures into the recipient's income. Finally, SSI recipients cannot have countable assets that exceed $2,000 for individuals or $3,000 for married couples.

As of January 1994 the maximum federal SSI benefit for a single individual living in his or her own home was 77 percent of the corresponding official 1993 poverty threshold; for couples, the maximum benefit was 92 percent of the corresponding threshold. State SSI supplements vary, although not as widely as AFDC payment levels. In looking at only those states (about half) that supplement the federal benefit for single aged people, the median combined federal-state benefit in those states was 83 percent of the official 1993 poverty threshold, with a range from 77 to 142 percent. The addition of food stamps raised the median benefit in these states to 95 percent of the poverty threshold, with a range from 92 to 156 percent (U.S. House of Representatives, 1994:Tables 6-1, 6-7, 6-8).

Pensions for Needy Veterans, Their Dependents, and Survivors The federal government provides pensions to veterans who served honorably for at least 90 days (including at least 1 day of wartime service), who are totally and permanently disabled for reasons not related to their military service, and who have incomes below the prescribed limits. (Veterans disabled during military service are eligible for disability compensation payments, for which there is no income test.) Survivors of veterans who die from a nonservice cause who meet the income test are also eligible for pensions.

There are different definitions of countable income for veterans who established pension eligibility at different times. For those entitled after January 1979, virtually all of their income is counted with the exception of public or private cash welfare aid. In addition, veterans must meet an asset test, in which a determination is made of whether their property (excluding a home and personal effects) is of sufficient value that it could be converted to provide income support.

Maximum pension amounts (paid to those with no countable income) are about the same as the official poverty thresholds for veterans with no more than two dependents. For widows and widowers and for veterans with three or more dependents, the maximum pension amounts are 60-80 percent of the corresponding poverty thresholds.

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